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THE CANADA FARMER



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The Field.

Potatoes and their Cultivation

HISTORY.

The potato is more important as a variety of human food than any other root we cultivate; its cultivation extends over a wider range than any other plant; indeed, so universally is it diffused over the habitable globe that it is found in almost every position where man can exist. It extends beyond the limits of barley; even in the Arctic regions it struggles for existence, producing stunted watery tubers in an imperfect state of development, while it flourishes in tropical as well as temperate climates, so easily does it adapt itself to circumstances. It ranks among the most useful of vegetable productions; it is highly prolific, and its value, which is incalculable, is hardly understood to its fullest extent.

The family of the *Solanaceae*, to which the potato belongs, is suspicious; many species are narcotic, and many highly poisonous; though in the case of the *Solanum nigrum* (one of the potato family), the young and tender shoots, when cooked, are used as vegetables in some countries. It is curious to note that the poisonous bitter-sweet, the tobacco plant, the tomato, the Cape gooseberry, the capsicum, the deadly nightshade, and the henbane, the thorn apple, mandrake and petunia, all belong to the same family as the potato, which excellent vegetable was at first regarded with indifference by our forefathers.

Sir Walter Raleigh, though not actually the first to introduce the potato, was nevertheless among the first who endeavoured to attract attention to it, and cultivated it on his estate in Ireland. He could not of course have been acquainted with one-half its useful properties; and little did he dream that in after years it would radically revolutionize the diet of the country where it was first cultivated.

The scientific analysis of the potato is not within scope of this article, and it will be sufficient to say that it is rich in starch, that it does not contain as much gluten as our cereals, and that it is wanting in nitrogenous matter; it is, however, more nutritious than any other of our esculent vegetables. Potatoes have been said to possess the advantage of solidity, like bread, and to have the healthful properties of many fresh vegetables, without their acidity. As an article of diet, when not used exclusively, they are of untold value. So universal has the use of them become that they are almost an essential dish at dinner for both rich and poor—for who thinks of a dinner without potatoes?

The early history of the potato is, like that of almost all other cultivated plants, very obscure. It is a native of mountainous districts of tropical and sub-tropical America. Darwin states that it grows wild on the islands of Chiloe and Chonos, in great abundance on the sandy, shelly beach near the sea; that they resembled in every respect, and had the same smell as the English potato; that they shrunk in boiling, were watery, and had an insipid, bitter taste; that they were undoubtedly indigenous there, and grew as far south as latitude 50; that they were called *Aguijas* by the Indians of that part. He adds: "It is remarkable that the same plant should be found on the sterile mountains of Central Chili, where a drop of rain does not fall for more than six months, and within the damp forests of these southern islands."

Some writers state that the potato originally, in its wild state, was unpleasant to the taste and poisonous, wholly unused by the aborigines, and has been brought to its present perfection by cultivation; whilst others state that the potato had been cultivated in America, and its tubers used for food, from times long anterior to the discovery of America by Europeans.

The potato seems to have been first brought to Europe by the Spaniards from the neighbourhood of Quito, in the beginning of the

sixteenth century, and spread from Spain into the Netherlands, Burgundy and Italy, but only to be cultivated in a few gardens as a curiosity, and not for general use as an article of food. They were long known by the Indian name of the sweet potato, "*Batatus*," which is the plant and tuber meant by English writers down to the middle of the seventeenth century. The potato appears to have been brought to Ireland by Hawkins in 1555, and to England by Sir Francis Drake in 1585, without attracting much notice, till it was a third time imported from America by Sir Walter Raleigh about 1610. It was still a long time before it began to be extensively cultivated. Gerard, in his *Herbal*, published in 1597, gives a description and figure of the potato under the name of *Batata Virginiana*. As the potato is not a native of Virginia, it has been doubted if the plant there figured is the common potato. So little were its merits appreciated that it is not even mentioned in the *Complete Gardener* of London and Wise, published in 1719, whilst another writer of the same period says that the potato was inferior to *skirret* and *radish*! It began, however, to be imagined that it might be used with advantage for feeding "swine or other cattle," and by-and-by that it might be useful for poor people, and for the prevention of famine, or failures of the grain crops. It is said that the progress of potato culture was greatly retarded by many prejudices. There seems little doubt that the potato was cultivated in Ireland long before its introduction into Britain; but it was limited to the garden for at least a century and a half after it was first planted at Youghal.

Potatoes began to be tried as a field crop in Lancashire about the end of the seventeenth century. Before this time they were confined to gardens, and only used occasionally by the most wealthy. To Lancashire the field culture was confined for many years before it was extended much to other counties; but in the early part of the last century the culture of it began to spread over the country.

The potato is said to have been first cultivated in Scotland about 1683, but was then confined to the gardens. It appears from the general report of Scotland that in the year 1725-6 the few potato plants then existing near Edinburgh were left in the same spot of ground from year to year, a few tubers being taken and used in autumn; the parent plants were well covered with litter to save them from the winter's frost.

Different counties of Scotland claim the honour of having first cultivated potatoes in the open field. One account states that in 1728 one Thomas Prentice, a day labourer, first planted potatoes in the open fields at Kilsyth, and that his success was such that every farmer and cottager followed his example.

Ignorance of the mode of cooking them also retarded their culture. A person who had been invited to taste the first potatoes grown in the county of Forfar, about 1730, related that the roots had been merely heated, and that they adhered to the teeth like glue, while their flavour was far from agreeable. The food was about to be condemned through the ignorance of the cook, when the accidental arrival of a gentleman who had tasted a potato in Lancashire caused the rejected roots to be remanded back to the hot trifles ashes, till they became as dainty as they had before been nauseous.

On the potato being improved and returned to America, it seems to have had the same prejudices to contend with as it had at first in Britain. A writer in an early volume of the *Cultivator*, speaking of the re-introduction of this esculent as a curiosity upon the table of the Governor of Massachusetts, says that when a child he learned from a very aged woman, who was a cook in the said Governor's family, that she first saw the potato there about the beginning of the eighteenth century, and that they were small and of a disagreeable flavour. Her observation then was, "If great folks like such things, as these because they are novelties, I am sure they are welcome to them for all me." Much prejudice existed against the potato, causing a very scant cultivation of it even so late as the war of the revolution. Belknap, in his history of New Hampshire, states "That in 1719 a large number of emigrants came to this country from the north of Ireland, and settled a township which they called Londonderry, and that among other things they also introduced the culture of potatoes, which were first planted in the garden of Nathaniel Walker, of Andover. These people being called Irish, the potato they introduced was called the Irish potato, which name they still bear in many parts of the United States."

W. R.

Cobourg.

Hurdles for the Farm.

In England, on all arable farms, there are many rods of hurdle fences erected daily during the season. Every shepherd knows what it is to have to make a large enclosure once, if not twice, each day. On a farm in Hampshire the writer has many times set such "fences," as they would be called here, but at home they were called "pitching hurdles." Every English farmer knows all there is to know about such work, and the wonder is that here in Canada scarcely any one thinks of making these hurdles or erecting such fences, though there is little doubt

they would make a cheap and durable, as well as most convenient and useful fence.

In England, when a flock of sheep were to be moved from one field to another (usually turnip fields), a waggon loaded with wattle or gate hurdles preceded the flock. These hurdles were hauled and distributed lengthwise along the field, and were afterwards all erected in a straight line. A few were left at one end in excess of those required to make the long fence; and these were used to enclose, crosswise, about half an acre to begin folding with. When all was ready, the sheep were brought in by the dog, and the job so far was completed for that day. The time required to pitch such hurdles is very small. A crowbar (made usually of an old musket barrel, with a heavy, solid, pointed end, welded on to the breach of it), is driven into the earth about 12 to 18 inches deep, and a stake plunged into the hole thus made, and after putting up the hurdle in line, a wire, or other kind of shackle, is slipped over the projecting end and over the end of the stake, including also the end of the next hurdle; thus the ends of both hurdles are securely fastened to the stakes. When a shepherd is naturally a smart hand at this work, and does his best, about one minute is sufficient to erect each hurdle, and sometimes, under favourable circumstances, a less time will suffice. It therefore follows that about sixty of these hurdles can be thus erected and placed in the form of a solid and durable fence in about an hour.

Each of these hurdles is 8 feet long by 3 feet 6 inches high, and consequently there would at the above-mentioned speed, be nearly five hundred feet of fence set up in an hour. Of course the hurdles are so laid when being removed from the waggon, as not to be required to be carried far before being raised into the line. Still, each hurdle has to be lifted and placed, the hole made, the stake pitched, and all shackled together, and it seems a good deal of work to do in such short time; but it is often done. Afterwards, it may be many days before the long or main line of hurdles is removed, as piece after piece of the turnips or other similar food is each morning fenced off, and the hurdles necessary to do this are of course carried some yards each. This is much slower work than erecting the main line, where all the hurdles are laid ready to the hand. Now it would be manifestly impossible for a sheep farmer at home to do without this or some similar fence. Of late years, wire is used as being still more easy of moving. Nettings, also of various kinds, are now freely introduced; but these would not answer in Canada. The hurdles, however, would, there is little doubt, form a most useful addition to our farms. At home, the cost of an ordinary wattle hurdle used to be about 13 cents, whilst that of a gate hurdle was probably twice that sum. Timber, of course, was worth much more in England than in Canada, and such gate hurdles ought not to

cost more than 30 cents each here, especially when proper precautions are used to have their construction reserved for a bad day, when little else could be done. If the bars or thin rails of which they are composed were split out, and laid by in a pile, across and across, so as to take them out of "wind," and the ends also similarly treated, there is no doubt a handy man who will "move" himself could make at least six such hurdles a day. There is no nice work required on them, no smoothing of the bars, simply reducing any over- or under thickness or width at the end with a draw-knife, and they are then most rapidly put together, and pinned through the heads of the bars.

Black ash or cedar, split into bars about three inches and a-half by half inch or five-eighths in thickness, are all that is required for them. Five bars are used for each gate, and two short braces. The leads or ends should also be split out of black ash, and are usually one-and-a-half by two-and-a-half inches, and five feet long. In morticing the heads, two or three might be bored at once by contriving a means of retaining them in their proper place when boring them, which boring might be done with an ordinary carpenter's morticing machine with great ease and accuracy. In all these small matters, there will of course require more or less arrangement in carrying them into effect; but once convinced of the advantages and the necessity, there will soon be made good progress towards completion.

Almost all these appliances on the farm are condemned as difficult, if not impracticable, generally on account of having no place to work in—no shop, in fact, where such things can readily be done, and which ought always to exist and to be provided with tools of sufficient variety to enable amateurs to do good work. Good professional carpenters will not work without good tools, and they must also be in good order; and yet we often see poor workmen trying to do a job of work with such tools as a good hand would despise and utterly refuse to use.

3.

Wire Fences and their Construction

I have had a good deal of experience in wire fence, and have come to the conclusion that I want no better. I shall buy no more rails at twenty dollars per hundred, nor have I done so for the past ten years. Wire takes less posts in number and smaller in size.

It makes some difference what kind of stock one wants to pasture as to the construction of the fence. Where you do not turn out hogs or sheep I think the following plan is about right—the one I have adopted and find entirely satisfactory, viz:

Cut posts six feet in length; allow two feet to go into the ground, then thirteen inches from the ground bore a three-eighth inch hole; seven inches higher, do.; eight inches, do.; eight inches, do.; nine inches, do. This you will see takes five wires, and the last is three inches from the top of the post. Set posts twelve feet apart, and use No. 6 annealed wire (diameter about three-sixteenths of an inch), which should be painted white, two coats; a good plan is to paint it before it is put up.

For drawing the wire and keeping it tight you have cast iron rollers six inches, one and one-half or two inches in diameter, with three

holes through them, one for the wire, and about the same size, and two holes five-eighths or three-fourths of an inch; then two steel levers eighteen inches long, tapered at one end to fit the last named holes; let the rollers come against the end post (which must be well braced with a heavy prop running from the top of it to the bottom of the next post), the wire just through them; then with the levers applied you can draw so tight as to take any little kink or crook out. If the ground is level and the fence straight, one set of rollers is sufficient for three hundred yards. The wire should be tightened once in a while in hot weather, but slackened in extremely cold weather. No. 6 wire runs about nine feet to the pound, and here costs six cents per pound.

For pigs, hogs or sheep, put more wires, say seven or eight; this is the number some of my neighbours use, but I think it is a waste of time and money. One of my neighbours has a wire fence along the turnpike that has been standing seventeen years; posts sixteen feet apart, and No. 7 wire, which is lighter, and yet it is available. The posts I use are about four by five inches at bottom, tapered up to about two and a half by three and a half at the top. I think there is no neater fence on the farm.—*Cor. Country Gentleman.*

Sugar Making.

To the Editor.

Sir,—In these days of invention to save labour, and farmers' help growing dearer every year, most of the sugar makers in this part of the country have of late years done away with the old-fashioned kettles and back logs, in place of which we generally find a comfortable sugar house, arch, heaters, pans, dry wood, and all the paraphernalia of advanced times, doing the work cheaper, quicker, and better.

In connection with this process, I have for a number of years adopted a plan which, in gathering sap, saves labour and time, and at the same time ensures the emptying of every bucket, even by a "greenhorn" sugar maker, and only requires these things to show at once its simplicity and efficiency.

Make two holes in the bucket to hang by, as nearly opposite as possible, paint a black stripe an inch or two in width, extending about half way round the bucket, so that the centre of the stripe will be about underneath one of the holes. In this way, when the bucket is hung, the stripe must be against the tree or directly from it. When you tap, hang all the buckets with the same side out, turning the buckets every time you gather.

Many steps are often lost in making sure that every bucket has been emptied, and very often some are missed, causing sour sap, buckets to run over, &c., which is obviated by this method, as a missed bucket can be detected as far off as the stripe can be seen.

An article in your very valuable paper on "Mode of making sugar in Ontario," would be very acceptable.

READER.

Greenholmsville, Quebec.

Early Spring Seeding

All experience goes to prove that early spring seeding is—nine times out of ten—the best. Our seasons are very short, even when the utmost advantage is taken by sowing in good time. We do not advocate putting seed into the ground until the land is in good order to receive it; nor do we advise getting on the land before it is fit to bear the team; but we do advocate driving hard for an early spring seeding.

To be able to contend efficiently with such hard work the teams must be in good heart and grain fed. It will not answer our purpose to begin to feed just as you begin to work them very hard. The team must have time to gather flesh and strength before the excessive hard work begins. One bushel of grain so fed before work begins will do more towards making up a team than two bushels will afterwards.

Another great cause of delay often occurs from not having procured seed beforehand, and consequently having to run about to hunt it up afterwards. All seed required should be procured before work in earnest sets in. "No doubt this precept is good," some one may say, "but seed costs money, and cash must be paid for it, and when capital is not abundant, this looking ahead is rather difficult work." All this may be true, but that does not diminish the necessity of procuring seed before spring work. Where this is not done, very great loss must arise; and, moreover, the repeated occurrence of this delay and consequent loss may account for that scarcity of capital complained of. Let us just reckon the loss and delay that probably will arise from having to hunt for seed just when it is wanted to be sown. It is perfectly notorious that the loss of one or two days may cause the loss of four or five days of a season; or, in other words, having to run after seed just when wanted, may lose the best time for sowing, and sure to lose the time required to go for it. Then, most probably, in the hurry you are obliged to be content with seed of an inferior quality. Now the time thus lost is certainly two or three days, which at \$3 a day team and man, are say \$8. The comparatively inferior quality of seed will make up, on a farm of 100 acres, at least fifty cents an acre at harvest in quantity, or say \$25. We may add another 25c. per acre for deteriorated quality of the sample, which is little enough to allow. Then the chance of bad weather in harvest by one week's delay in spring may, and very often does, throw the crop two weeks behind, bringing it into September, when the probability of bad weather is greatly increased. We will put down the loss on this score at the low figure of \$12 50; and we now find, reckoning at this very low average, that we have \$8 for loss of time, \$25 for probable loss in sample over the whole farm, \$25 for probable loss in quantity, \$12 50 for loss from harvesting in bad season instead of good, and \$10 for probable loss in quality of fodder—or a total of \$80 50 almost certain loss from not being provided with seed in good time. This sum amounts perhaps to nearly the value of the seed sown, and here is an excellent illustration of the probable reason why capital is deficient wherewith to purchase seed at the right time. Similar losses in other departments will fully account for capital being deficient throughout the whole range of the business.

The remedy is foresight and care. A constant leak of this kind pervading any business, will keep it down in spite of all exertions to prevent it.

The estimate of loss we have set down does not indeed at all adequately exhibit the amount of loss that in a hundred ways must arise from being behind-hand with work on the farm. We would again impress on the farmer the importance of looking well ahead and being prepared for the season in advance. His motto should be that of the soldier—"Ready, Aye Ready."

Muck and its Uses.

Every one knows what muck is, and the expression, "wet as muck," is as common as the article itself. Its general material is vegetable matter, which has been accumulating for wages in wet lands, where, unless in very dry seasons, it is deluged in water. In some localities we have seen it in nearly a decomposed state, and so free from vegetable fibre that an exposure to the atmosphere for a short time would reduce it to a powder. In other cases the vegetable fibre remains in so good preservation, owing to the constant moisture it retains, that time and the action of strong solvents like frost, or agents applied for its amelioration, become necessary to fit it for economical uses in husbandry.

Muck, in its natural state, is highly charged with acids. This is the natural result of its constantly lying in cold, stagnant water. Until this acid is disengaged, it is of but little use for agricultural purposes—alkali becomes necessary to effect the object; so we find exposure to the atmosphere improves it, but too slowly to meet the ready wants of the farmer. Mixing ashes or lime more readily accomplishes the object, and they are either of them, whether used in connection with muck or otherwise, very beneficial to the soil. Mixed with barn-yard manure, it is invaluable for top-dressing, the alkaline qualities of the manure setting forth the acid of the muck and aiding the atmosphere in decomposing the vegetable matter. Coal ashes, immense quantities of which are now thrown away, although they possess but a small amount of alkali, may be thrown in the muck heap to great advantage as a disintegrating agent. Soapsuds, where they cannot be made to apply to plants directly, are excellent for the muck bed.

Its value as a manure is very conclusive when applied as a top-dressing, from its speedy action and long continuance. For tree food there is nothing better. It possesses the two-fold properties of keeping the soil open and loose for the young roots, and furnishes just the food a young tree needs. In the garden, for all kinds of vegetables, we have never seen its equal. Radishes grow freely, clear and tender; when vines such as cucumbers and melons are planted on it, they succeed admirably. In short, it is the manure for all crops. What a pity that, with its abundance, so much of it is allowed to waste away, breeding disease in our swamps! —*Cor. Country Gentleman.*

Good Prospects for Beet Sugar.

The report for January of the Department of Agriculture contains some interesting statements in regard to the manufacture of beet sugar. The failure of the first experiments at Chatsworth, Illinois, and the cause of it, are duly noticed. Subsequently, experiments were made on Yellow Creek, near Freeport, with what success the report does not state. At Black Hawk, Wis., 40,000 pounds of sugar were made, in 1871, from the product of 200 acres of beets. But the largest success has been realized at Alvarado, in California, where a large sugar manufactory has been built, with a capacity of handling sixty tons of beets every twenty-four hours. The beets raised in the vicinity contain sufficient saccharine matter to pay the farmer well for raising them, and leave a fair margin of profit to the manufacturer. In 1870, the company manufactured 500,000 pounds of sugar, and the past year, it is expected, the product will be doubled. The high price of labour in California has thus far operated as a serious drawback upon the beet sugar culture, and withal it is clumsy and unskilful. As it is asserted that the cost of sugar to the people of the nation equals the cost of its bread, only a few years will, doubtless, be required to make the manufacture of beet sugar one of our largest and most successful industries. — *W. C. R. Rural.*

The great sources of fertility to the farm are the refuse of the crops which they bear, modified by the farm-stock, and preserved and judiciously applied by the husbandman. There is not a vegetable matter grown upon the farm, be it considered ever so useless or obnoxious, but will, after it has served ordinary useful purposes, impart fertility to the soil, and contribute to the growth of a new generation of plants, if it is judiciously husbanded and applied.

PLASTER.—In answer to the enquiry of a "Nichol Farmer," we would say that the surface application of plaster or gypsum ("on the leaves of plants"), is most assuredly beneficial, as experience has amply testified. The benefit is attributable in great measure, though not exclusively, to the power of the plaster to attract moisture from the atmosphere, and thus distribute it to the plants on which it is spread.

A series of geological maps of the country will remind the thoughtful man how wrong and unreasonable it would be to recommend a uniform agricultural treatment, or one unsuitable to the formation, elevation, aspect, and latitude of the greatly varying soils and districts. This consideration suggests the necessity of considering all the conditions before applying any particular treatment, either as regards soil or crop.

"In the sweat of thy face shalt thou eat bread," will be the condition of man until the end of time. No discovery of science, or mechanical invention, or improvement in the breed of animals, will ever do away with the necessity of mental or physical labour. These things may change the character of our work, and give us more of the comforts, necessities and luxuries of life. In fact, now, probably we work harder in this enlightened age than ever before.

Stock Department.

On the Breeding of Cattle.

The following extracts are from a paper read before the Nottingham Chamber of Agriculture by Mr. W. Sanday, a well-known English breeder:—

Shorthorns, on account of their early maturity, having become more popular in this country than any other breed of cattle, I shall (he said) confine myself to them. The same observations will, of course, apply with equal force to any other variety. To give you some idea of the increase in the number of short horn breeders within the last 20 years, I may mention that in the year 1850 there were 316 subscribers to Coates's *Head Book*, and the pedigrees of 1,127 bulls were entered; to the last volume we find 655 subscribers, with the pedigrees of 2,366 bulls. I would ask whether, in the opinion of this meeting, the number of really first-class animals has increased in proportion? My own opinion is, that the animals bred at the present day are inferior both in size and in quality to those bred 20 or 30 years ago. Now, if this be the case, surely there must be something wrong in the present system of breeding. I am convinced that the cause of this deterioration is the principle on which most herds are raised, viz., the fashion—or rather infatuation—of collecting from certain families without any regard to the qualifications necessary for producing and perpetuating good animals. To follow out this plan, in-breeding must to a very great extent be resorted to, and the number of families on which such an experiment can be tried with the smallest chance of success is so limited, that, in the majority of cases, the consequences cannot fail to be ruinous.

We all know the difficulty of raising and keeping up a good herd or flock, this can only be done by breeding from the very best males or females, but the present system seems to set this rule completely at defiance, if an animal be only of the fashionable strain, it is sure to make a fabulous price, whatever its quality. Only last year two heifers were sold by Captain Gunter to a Canadian gentleman for £2,500, and their produce, two heifer calves, has since been purchased by Lord Dunmore for the same sum (£2,500). Should these calves breed, what price do you think Lord Dunmore will set upon their progeny? Of course it will be a high one, totally irrespective of their quality; should a bull be reared, doubtless he will be used, no matter what he may turn out. I have, of course, put this as an extreme case; but similar ones are constantly occurring, and this servile adoration of pedigree cannot fail to end in disappointment, and ultimately in the permanent deterioration of Short-horns. With many, a long pedigree is all that is considered

necessary; but unless this pedigree be composed of really good animals, the produce will probably be unsatisfactory. A well-descended bull or ram may, although not itself first-rate, produce first-rate stock; numbers of such instances have come within my own knowledge. The case is far different when the sire comes of a line of light-fleshed delicate animals (and these, I am sorry to say, are in the present day only too numerous.) Surely any of us may foresee the end of such an irrational plan; and yet it is pursued, as I have already stated, by numbers of breeders.

There are (he observed) two other causes which, in my opinion, must hasten the deterioration of many of our best herds, viz., first, the artificial manner of rearing calves; and second, the practice of using bulls before they arrive at maturity. First, the artificial manner of rearing calves, especially bul calves: They are confined in small stalls or loose boxes, instead of being allowed to suck upon their mothers in the open pastures where they could take any amount of the exercise so necessary to their muscular development. I am well aware of the difficulty of carrying out this plan to any great extent, but whenever practicable it should be adopted, if really first-class animals are to be produced. Second, the practice of using bulls long before they come to maturity: It will be sufficiently evident to every one that such a practice cannot fail to be injurious, and, though instances to the contrary may be adduced, they are only the exceptions which prove the rule. I am also quite of opinion that over-feeding is another cause of deterioration; but it is not likely to be discontinued at present, as, owing to the extreme difficulty of judging animals when out of condition, there are but few who will purchase them. I am well aware of the scarcity of first-rate sires, and never in the history of Short-horns have they realised such enormous prices; but had the supply increased in proportion with the number of breeders, no such difficulty would have arisen. One advantage, however, has been gained. There is no lack of useful bulls, which may be purchased at moderate prices, and these, I think, we may fairly congratulate ourselves, have much improved the ordinary stock of the country.

I am now (he continued) especially addressing myself to farmers, many of whom keep well-bred bulls, a practice the importance of which cannot be over-rated. Here I may perhaps be allowed to make a few remarks on the selection of this description of stock. In the first place, it should always be remembered that the male has a greater influence on the quality of the stock than the female; consequently, every female put to a good male will probably produce a better animal than herself, this rule applies to all ordinary stock put to a well-bred sire. Therefore, never spare a few pounds in the purchase of a good animal, for you may reason-

ably expect a handsome return for the amount expended in the improved quality of the stock. Second, with regard to the selection, the importance of which I think you will admit, I would most strongly recommend you to fix upon a flock or herd known to be descended from a long line of heavy-fleshed and robust animals, and one whose owner has a character for careful selection of his breeding stock. I am glad to say that breeders answering to this description are still to be found. By pursuing this course, the danger of getting inferior stock is reduced to a minimum. Carefully avoid, however, herds bred from the light-fleshed, narrow and delicate animals so common at the present day. In purchasing a bull for ordinary use, above all things choose a fair-sized animal, with good quality of flesh; if well descended, do not be too particular about his form. The shoulders are better well open at the top, not narrow like the withers of a horse; no matter if a little coarse, if it is a sign of constitution; the ribs should be well sprung, a most important point, but difficult to get; the hips large, even though they should be coarse; the head and neck masculine, and the horns rather thick than otherwise—a thick horn is a sign of robustness and vigour. I do not like the thin papery hide which so many admire; you may be sure there is not much flesh under it.

Let me especially impress upon you the importance of selecting a bull from a herd superior to your own; he should, of course, be as perfect in form as possible, but the following points should be made a *sine qua non*, viz., good and heavy flesh, good looks, well-sprung ribs, and, above all, a pedigree without blot. Bear in mind, however, that a long pedigree is not necessarily a good one. Success in breeding, I am quite convinced, requires a certain amount of intuitive knowledge; it is this which enables one to see at a glance when an animal is likely to be a good stock-getter, or whether a young animal is likely to improve or deteriorate. I cannot believe that this faculty is possessed by many of the breeders of the present day; if it were, the quality of the cattle brought under our notice at sales and shows would be very different. To quote an eminent authority (Mr. Darwin), "Not one man in a thousand has accuracy of eye and judgment sufficient to become an eminent breeder. If gifted with these qualities, and he studies his subject for years, and devotes his lifetime to it with indomitable perseverance, he will succeed, and may make great improvements; but if he wants any of these qualities, he will assuredly fail." Before concluding this part of my paper, I must say a few words on the subject of in-breeding—a subject to me most interesting, but at the same time most complicated. I feel certain that, under some conditions, the experiment might be tried with every chance of success, but these conditions so seldom occur that it can be attempted in but few cases. The conditions to which I refer are these: If two animals be first-rate in form and quality, without the slightest appearance of delicacy, or if the male be very good in points where the female is deficient, for if it be desirable to perpetuate the strain, then I think you might put father and daughter, mother and son, or indeed, any relations together, with the exception of brother and sister. Bear in mind, however, that any defects in the parents would be exaggerated, and each generation would decrease in stamina. From personal experience I cannot speak with any authority, having only tried the experiment once, and then upon sheep—the result was not satisfactory.

Management of New-Born Lambs.

The *Practical Shepherd*, in relation to the management of new-born lambs, gives these practical directions:—

If a lamb can help itself from the outset, it is better not to interfere in any way to assist it. If the weather is mild, if the ewe apparently has abundance of milk, and stands kindly for her lamb, and if the latter is strong and disposed to help itself, there is usually little danger. But if the lamb is weak and makes no successful efforts to suck, and particularly when this occurs in cold or raw weather, the attendant—the "lamber," as he is called in England—should at once render his aid. The ewe should not be thrown down, if it can be avoided, but the lamb assisted, if necessary, to stand in the natural posture of sucking, a teat placed in its mouth, and its back, and particularly the rump about the roots of its tail, lightly and rapidly rubbed with a finger, which it mistakes for the licking of its dam. This last generally produces an immediate effort to suck. If it does not, a little milk should be milked from the teat into its mouth, and the licking motion of the finger continued. These efforts will generally succeed speedily—but occasionally a lamb is very stupid or very obstinate. In that case, gentleness and perseverance are the only remedies, and they will always in the end triumph. Too speedy resort to the spoon or sucking-bottle frequently causes a lamb to rely on this kind of aid, and a number of days may pass by before it can be taught to help itself properly, even from a full udder of milk.

Oxen on the Farm.

Some of the advantages in using oxen are these: they can be bought for half the price horses can, and at most of the work on a farm will do as much as horses; they are less liable to disease; they are more quickly geared and ungeared than horses, and their fixtures cost nothing, comparatively speaking, and with care will last as long as the farmer. Yokes and chains are enduring articles. Oxen will keep well on good hay and good pasture, and these are all they need, except when worked very hard.

A thrifty pair of "three-year-olds" will do a great deal of work and grow better and more valuable till they are six or seven, and will do the work until they are nine or ten. If fattened, then they can be disposed of so as to pay more than the original cost, in addition to the cost of grain and hay consumed, thus making a clear profit to the farmer of several dollars, besides furnishing him with several loads of the best manure.

I have owned since I commenced farming at least twenty yoke of oxen, several of which were "three-year-old" steers, broken on the farm, and have never lost one, nor ever lost a dollar by dealing in them. During the same period, by accident, mismanage-

ment and disease, I have lost five valuable horses, worth from one to two hundred dollars each.

Now, there are many men who rent farms, work them on the shares, and own farms partly paid for, who can scarcely make both ends meet even when they work hard and economize to the utmost. Taxes, rents and labour are high; interest, mechanics and store bills must be paid. Having travelled this hard road myself, I can with the certainty that experience may be presumed to give, point out to such a method by which they will be enabled to escape from the unpleasant dilemma of working hard and making nothing. U oxen more and horses less.
—*Cor. Country Gentleman.*

Jersey and Guernsey Cattle.

As the interest in the race of cattle bred on those islands seems to be on the increase in this country, I will note some of the impressions formed of them during a fortnight's visit this summer, at the time of the Channel Islands Fair, held in Jersey. This fair, the first general one ever attempted, was very successful. The grounds were delightfully situated, commanding a fine view of the beautiful island and bay; the weather was perfect, and the people turned out in great force. More than 300 animals were shown, besides a fine display of fruit, flowers, and agricultural produce. The Jersey cattle were the most numerous; there were not more than 20 from Guernsey, and none from Alderney or the other smaller islands. The Jersey bulls, about 40 in number, were a very superior lot, and the young cows and heifers with calf especially good. From conversation with farmers and others, I found the general idea of the derivation of the Channel Island cattle to be that they came originally from France, from the provinces of Brittany and Normandy. It was thought that years ago there may have been some intermixture of the cattle on the various islands, but that for fifty years at least they have been kept quite distinct. At the present day there are strict laws both in Jersey and Guernsey forbidding the importation of their respective breeds, or any cattle that can be used for breeding purposes.

In Guernsey the farmers seem to have been satisfied with the quality of their animals, and have hardly paid the attention they might in all cases to improving the form. In Jersey, on the contrary, so much attention has been given to beauty, high-bred appearance, solid colour, &c., that they seem to be in danger of sacrificing to a certain extent the richness and high colour of the milk.

In the quality and richness of milk, and its deep yellow colour, the Guernsey as a race seems to me superior. At the fair I saw no Jersey butter equal in colour to specimens from Guernsey exhibited there; in fact, some of the Jersey butter was artificially coloured, and all through the island of Guernsey, at the farms, in the market, and at the hotel, the butter was of the first quality in colour and flavour.

The Jersey cattle are a smaller race than the Guernsey, the latter having generally large frames and coarser bone. This is more

marked in the bulls even than in the cows. The Guernseys are said to fatten quickly when their usefulness is over in the dairy, and to make excellent beef. I can see no reason why crosses should not be made between the two breeds from selected animals, to the improvement of both. The Jerseys would give the beautiful heads, level backs, &c., and the Guernseys would improve the size, the skin colour and fattening qualities. I saw some Guernsey cows that seemed to have all the desirable points of quality, size and beauty, some Jerseys also that fit nothing to be desired, except perhaps size, but I speak of the average types.

To sum a comparison of these two breeds of Channel Island cattle, it might be put in this way, in the order of excellence:

	First.	Second.	Third.
Jerseys.....	Beauty.	Butter.	Prof.
Guernseys.....	Butter.	Beef.	Beauty.

Crossing the two would give an animal that would do credit to any gentleman's lawn, be of first quality in the better dairy, and not in the end be sold for a mere song to the butcher.— *Cor. Country Gentleman.*

Breaking Oxen.

A correspondent of the 'American Stock Journal' gives his experience in breaking oxen as follows:—

In the first place I put them into the stable and commence introducing myself to them as their particular friend, feeding them good bits, such as sweet apples, small ears of corn or sliced potatoes. When in the yard, I secure their friendship by doing the same from my pocket. They will soon follow me about. I then attempt to yoke them, and it does not take three or four boys and a dog to do it. I never leave them to struggle about the fields (as is the custom of some) to turn their yoke and haul each other about.

A good teamster will have a name for every ox, and no two in the same team should be called by the same name; nor should he ever speak one word that has no meaning; but be sure when he calls an ox by name to make him understand, and also to make him mind what he says.

This is more important than many persons imagine. Suppose a man has two sons and he calls them both John. It will be difficult when the boys are together and command is given to ascertain to which of them it belongs.

When breaking a new team, the best way we ever found to make them know their names is when we call "Star," or "Bright," or "Broad," or "Buck," to just touch the one we speak to with a spur. By that means the ox will soon know that he is meant when he hears his name distinctly pronounced.

I then take them into the road and teach them to travel, that is walk evenly and quick—stopping often, and suiting my action to the word by stopping myself. I then give something from my pocket. I practise in this way a while, and instead of their running from me they rather relish my visits. Sometimes I attach a rope to the bow (never to the horn or nose) as a kind of safeguard in case of fright and to illustrate the command to stop.

When they will step uniformly at the word, I put them to a light sled—give them a good path, sometimes let them take the lead of me; stop quite often and give something to encourage the stopping.

The driver should also have one particular word to start the team with. "Come boys," we ever found the best word to start a heavy load with. Some seem to think when they are driving a team that they must work the whole time, either with their tongue or whip. It would be a most desirable thing for such to keep both tongue and whip perfectly still.

What would you think of an officer, who, when his men were marching along as handsomely as possible, should keep jabbering incessantly, without meaning; all the words needed in driving are very few. We think the following are sufficient:—"Come," "Haw," "Gee," "Back." These properly used are all that are needed. Much talk makes confusion. As soon as they become a little accustomed to the yoke, I begin to draw something, loading light. One trouble with teams of young cattle is they too soon think they have become oxen, and lead too heavy.

Care of Early Lambs.

As lambs are one of the largest sources of profit to the sheep farmer, he should observe every requisite to success in rearing them. Most flock-masters have found early lambs most profitable, both for the butcher and to keep for breeding, and wool. Early lambs become large and strong enough to winter well, and will stand short feed in the fall, while the late ones must be full fed, or they reach winter with too little stamina to go through without the greatest care. The ewes should be stabled at yearning when this occurs earlier than May, in our northern climate. With proper shelter lambs may be reared with less labour than when the ewes are at large in pasture, as it saves the time of hunting for them over large fields. The ewe should be fed generously that she may furnish an abundant supply of milk. The shelter should be well ventilated, but so arranged that it may be closed from winds, and on this plan the largest percentage of lambs may be raised. A little oil-meal mixed with bran will have an excellent effect upon the health of the ewe at yearning time.

If the ewe does not furnish milk enough for the lamb at first, give it fresh cow's milk from a bottle with a rubber nipple, so that the lamb may receive its nourishment in the natural way.

Early lambs well fed will be as large at six months old as later and common ones at a year old.

The Cottswolds have attained their remarkably early maturity from high feeding. Early maturity means early and large profits.—*Live Stock Journal.*

HORSE PERILS.—The accidents, some of a fatal character, caused by runaway and unmanageable horses, are almost of daily occurrence in all populous communities. The question naturally occurs—Is it possible to remedy these evils? A correspondent of the *Builder* (English) explains his method of stopping the headlong speed of frantic and restive horses as follows:—"A complete electric apparatus can be purchased in a small case. Let one of them be fixed in an out-of-the-way nook in the carriage, two wires to hook to harness, beneath which have two very thin copper plates properly placed. In the event of a runaway, the driver and inside occupants would only have to press a glass knob to stop instantly the mad career of the strongest horses."

The Canadian Horse.

The Canadian is generally low-sized, rarely exceeding fifteen hands, and more often falling short of it. His characteristics are a broad, open forehead; ears somewhat wide apart, and not unfrequently a basin face; the latter, perhaps, a trace of the far remote Spanish blood, said to exist in his veins; the origin of the improved Norman Stock, being, it is usually believed, a cross of the Spaniard, Barb by descent, with the old Norman war-horse.

His neck is lofty, and his demeanour proud and courageous. His breast is full and broad; his shoulder strong, though somewhat straight, and a little inclined to be heavy; his back broad, and his croup round, fleshy and muscular. His ribs are not, however, so much arched, nor are they so well closed up, as his general shape and build would lead one to expect. His legs and feet are admirable; the bone large and flat, and the sinews big, and nervous as steel-springs. His feet seem almost unconscious of disease. His fetlocks are shaggy; his mane voluminous and massive, not seldom, if untrained, falling on both sides of his neck; and his tail abundant; both having a peculiar crimped wave, never seen in any horse which has not some strain of this blood. He cannot be called a speedy horse in his pure state; but he is emphatically a quick one, an indefatigable, undaunted traveller, with the greatest endurance, day in and day out, allowing him to go his own pace—say from six to eight miles the hour—with a horse's load behind him. He is extremely hardy, will thrive on any thing, or almost on nothing; is docile, though high-spirited, remarkably sure footed on the worst ground, and has fine, high action, bending his knee roundly, and setting his foot squarely on the ground. As a farm-horse and ordinary farming roadster, there is no better or more honest animal; and, as one to cross with other breeds, whether upwards by the mares to the tough-bred stallions, or downwards by the stallions to common country mares of other breeds, he has hardly any equal.

From the upward cross, with the English or American thorough-bred on the se's side, the Canadian has produced some of the fastest trotters and the best gentleman's road and saddle horses in the country; and, on the other hand, the Canadian stallion, whenever he has been introduced, as he has been largely, in the western part of the state of New York, is gaining more and more favour with the farmers, and is improving the style and stamina of the country stock. He is said, although small himself in stature, to have the unusual quality of breeding up in size with larger and loftier mares than himself, and to give the foals his own vigour, pluck, and iron constitution, with the firm and general aspect of their dams. This it may be remarked in passing, appears to be a characteristic of the Barb blood above all others, and is a strong corroboration of the legend, which attributes to him an early Andalusian strain.

R. JENNINGS, V. S.

Professor in the Veterinary College, of Philadelphia, &c. &c.

A Cedar Rapids (Iowa) farmer is training nine elk and two deer for farm service. He has been offered \$1,400 for the herd, but declines to accept.

CALIFORNIA WOOL EXPORT.—About 21,000,000 pounds of wool—6,000 tons—have been exported from California during the past nine months.

Never give a horse more than one pail of water at a time. If you think it not enough, offer another by-and-by. In nine cases out of ten it will be refused.

Mr. George Roach, of Hamilton, has sold his recently imported Berkshire sow Eric to Mr. Wright, Riverside Farm, Sandwich, Ont., for \$300.

Major Greig, of Kingswood Farm, Beachville, having removed to Toronto, has sold out his entire herd of Shorthorns to Hon. George Brown, of Bow Park.

Mr. N. B. Wheeler, of Ohio, recently purchased two Devon heifers and a two-year old bull from John P. Conibe, London, Ont., at \$100 for the bull, and \$50 each for the heifers.

Mr. I. C. William Stone, Moreton Lodge, Caledon, Ont., has lately sold to D. K. Shaw, Westfield, N. Y., the Hereford bull Charley the Baronet, got by Sir Charles, 3174, dam Bar mess, imported.

A British bull calf recently broke a leg, which a veterinary surgeon amputated and replaced with a wooden one, and, to the surprise of all observers, the animal is now walking about and doing quite well.

Col. Taylor, of London, has purchased from Wallcott & Campbell, of New York Mills, for the sum of \$2,000, "Earl of Oxford, 9955, got by "Duke of Geneva," dam, "10th Lady of Oxford, by "10th Duke of Thorsdale."

We learn that Mr. Cochrane's two heifers, Duchess 101st and 103rd, have each given birth to bull calves—the former to a very promising red by the 6th Duke of Geneva, and the latter to a red by (exported) Duke of Hillhurst.

An order has been issued from the Horse Guards to the effect that the army horses are not to be singed to an extent to render blankets necessary as a protection from the weather, and under no circumstances is clipping to be permitted.

Madame Booth, one of the Booth Shorthorn cows, imported by Mr. John Miller, of Brougham, Ont., has recently dropped twin heifer calves to Fawsley Chief, 10051. They are red, with a white star and fine coats of hair; they have been named Morning Star and Evening Star.

In Switzerland they give salt to cattle in the form of little blocks, composed of nine-tenths salt and one-tenth potter's clay. These bricks are placed in boxes at the foot of the manger, and within easy reach of the animal, which will take what instinct prompts, and no more. Some use them in the pasture in the same manner, when the animals will lick them at their pleasure.

JOHN SNELL & SONS, Edmonton, have recently sold to J. Whittaker, Oconomowoc, Wis., the Shorthorn yearling bull Marquis of Solway, by Loudon Duke, out of Welcome by Baron Solway; to Seth Heacock, Kettleby, the three year old heifer Ella, by Loudon Duke, out of Emma by Chettendam; and to T. Porter, Humber, the cow Alexander, by Baron Solway.

CARE OF HORSES.—As a rule the curry-comb is used too much, and the brush too little. When a horse is brought into the stable, covered with sweat and mud, he should be rubbed dry with straw. Then, the next morning with a curry-comb in one hand, and a good brush in the other, he can be thoroughly cleaned—the curry-comb only being used to straighten the hairs ahead of the brush. The difficulty about getting a good curry-comb arises from the neglect to rub the horse clean with straw before leaving him for the night. Much care should be used in cleaning a horse's legs with a curry-comb, so as not to injure the joints.

PRICES OF ENGLISH DRAUGHT HORSES.—At a recent sale of a very fine lot of large powerful cart horses in Liverpool, the following prices were given:—\$276, 361, 303, 317, 259, 283, 366, 378, 283, 244, 306, 361, 453, 317, 400, 544, 411, 311, 400, 306, 314, 322, 325, 405, 323, 444, 329, 353, 359, 353, 261, 378, 414, 306, 300, 283, 322, 322, 306, 400, 371, 400, 329, 359, 329, 323, 283, 366. The animals were mostly five and six years old, only a few seven. The whole lot was represented to be in fine order, and of great size, averaging seventeen hands in height, and probably 2,000 pounds in weight.

The London *Mark Lane Express*, in speaking of recent exportations of British stock to other countries, says: "From Glasgow, Mr. Simon Beattie, of Canada, has been shipping for his own stud farm at Bangor, Ontario, and Mr. Cochrane, of Montreal, two Shorthorn cows from the late Mr. Barnes' herd; a roan heifer of the Fanne tribe from the Hon.

1. Duncombe's, and a large collection of very first-rate Ayrshires, cows and heifers, bought up during the last three months from the best breeders in Ayr, Wigtoun, Lanark, Peebles, and other counties noted for their Ayrshire herds. Two or three first-class Clydesdale and other stallions, prize winners, also accompany the cattle."

SUMMER CARE OF HOGS.—A practical breeder says:—To handle hogs to the best advantage, a pasture is needed of mixed grasses—clover, blue grass, and timothy—and it is best if there is no running water or stock ponds in the lot. Hogs do better where there are no branches or stock ponds to wallow in. In place thereof, have good well water pumped for them. Have troughs made, and nail strips across, eight inches apart, to keep the hogs from lying down in the water, and let those hogs be put on floors to keep them from digging up wallowing holes. If any feed be given, it should be soaked in swill barrels for twelve hours before feeding—no longer—and fed to them as drink.

Veterinary Department.

Lice on Cattle and Horses.

To the Editor.

SIR,—My horses and cattle are this year very much infested with lice. They are, however, in high condition, but have been, the former bedded, and the latter fed, much on barley straw. Would the presence of the irritating barley "beards" incite the disease? I have tried many remedies, such as tobacco water, whiskey, sugar, &c., and the old women "nostrum" as a string round the neck, with mercurial ointment; but none are effectual.

As at this time this state is not uncommon among live stock, I am sure that many of your readers, as well as myself, would be glad to see in your next issue a remedy which will prove effectual.

I have also one of my horses with *scratches* very severely. Could we have the benefit of your advice on the curing of this trouble in the heel?

SUBSCRIBER SINCE 1864.

Barley straw, where extensively used as bedding, has a tendency to irritate the skin, rendering animals very uncomfortable; but where proper attention is paid to cleanliness, we cannot see how the use of barley straw will give rise to the production of lice either in horses or in cattle.

Lice generally appear in animals in poor condition, and where little attention is paid to cleanliness and regular feeding, and occasionally there is noticed a severe skin affection called "poultry lousiness," occurring in animals that are situated close to where a large number of poultry are kept.

When lice are present they can be easily detected; and various remedies may be used which will cause their destruction; but most of the applications have to be used with great caution. To cause their removal we strongly recommend cleanliness and the application of a weak mercurial ointment, which should be well and carefully rubbed into the parts, presenting the greatest irritation, and only a small quantity applied every second day, and the whole body must not be rubbed over at one time. Mercurial ointment, although an excellent remedy, requires to be used with care.

Another very useful remedy is *white hellebore*, one ounce; water, two pints; and a little of the lotion to be well rubbed on every third day. To make this application more potent, one pint of the infusion of tobacco may be added, of the strength of two drachms of tobacco to a pint of hot water. Stavesacre seed, if it can be procured, is also an excellent remedy, and may be used with hellebore in the form of a decoction, and in the proportion of 2 ounces of stavesacre to a quart of water.

If the irritation referred to by "Subscriber" is the result of some irritant, and not due to the presence of lice we would recommend a change of feeding, and to touch the irritated parts daily with a lotion composed of Iodine, three drachms; Iodide of Potassium, three ounces; water, twenty-four ounces. As a matter of course, endeavour to remove the exciting cause, or treatment will be of little avail.

Scratches in Horses.

Scratches or cracked heels in horses may consist in superficial excoriations, or in deep-seated sores of an indolent and ulcerous character; they result from slight inflammation set up in the skin and the sebaceous glands, which are very numerous in that part of the limb, and when once the skin is broken, the motion of the limb aggravates the disease.

Horses with coarse hair, and legs that have a tendency to swell when standing in the stable for a few hours, may be said to be predisposed to scratches; but the exciting causes are want of regular exercise, exposure to cold and wet, or wetting or washing the heels, and not drying them properly immediately afterwards, a common cause in the fall and spring months, when the roads are soft and muddy, and the clay and slush adhere to the limbs. Where horses are allowed to stand in the stable after coming from work with their legs in the condition mentioned, the heels are irritated, and extensive sores soon appear. A very slight injury to the heel from any cause, if not carefully attended to, may give rise to a very severe case of scratches.

Scratches, although a very common disease amongst our Canadian horses, with a little care and attention might be prevented. When a number of horses are so attacked in one stable, the management must be faulty in some particular. A slight case of scratches frequently becomes a very serious disease from the application of irritant dressings, as from using some of the oils that are recommended to cure everything; but instead of allaying the irritation, they excite inflammatory action, which is not only confined to the heel, but extends up the limb.

In the general treatment of scratches, when the case is severe, the hair of the heels, if long, should be carefully cut off, and the parts well washed with tepid water, and afterwards thoroughly dried with a soft cloth. To further allay the irritation, a poultice of linseed meal, or of boiled turnips, or carrots, should be applied evenly to the heels, and properly secured by a light bandage, taking great care that the bandage does not press too tightly on any part, as from the state of the heel circulation of the blood is easily disturbed; the poulticing should be continued for several days, and must be removed and renewed three times a day; and when removing the poultice, a moist sponge may be used in removing any hardened pieces from the sores; and a little of the following simple and readily procurable lotion may be applied twice a day: Acetate of Lead, two drachms; water, eight ounces. When the pain is allayed, the poulticing should be discontinued, but the lotion may still be used. In some cases, where the parts become very hard, a poultice may be applied for a few hours every third day. If the animal is at

work, the heels should be carefully cleaned every night; and if it is necessary to wash them, they should be thoroughly dried afterwards, and a dry flannel bandage applied, which should be removed as soon as the limbs are warm and dry.

In many cases where the legs are much swollen and the patient in high condition, it is beneficial to give a dose of purgative medicine, as seven drachms of the best Barbadoes aloes, and one drachm of powdered ginger made into a bolus. Before giving the purgative, feed on bran mash only, for twenty-four hours, and the same afterwards until the physic begins to operate, when the horse may be allowed a small quantity of hay. There are many other applications that are useful, but we have recommended what is safe and serviceable.

Injury of the Hock Joint.

To the Editor.

Sir,—I have what was once a valuable horse, that has been kicked on the hind leg, on the inside of the leg, on the lower part of the spavin bone, in the hock joint. It happened about a month ago, at night. Next morning I found it much swollen around the joint. I commenced at once a course of fomentations, bathing it three and four times daily for over two weeks, with equal parts of boiled hops and strong vinegar, with a handful of salt in it, as hot as the hand could bear, hoping thus to reduce the swelling, then bandaging it up with flannel cloths. On the third or fourth day after it happened I went to a person calling himself a farrier. He advised me to continue the fomentation, and he gave me a bottle of lotion to rub, and directed the application of a turnip poultice at night. By this time suppuration had commenced, and in a day or two after the poultice had been applied a discharge of matter took place, and along with the matter the joint oil escaped, and is still running. I have tried different remedies, and they all seem to have no effect in stopping the discharge of joint oil and matter. The discharge is getting more instead of less; the horse has fallen off to a mere skeleton. I wish to know if this discharge of joint oil can be stopped; if the horse can be cured; if so, what the treatment should be.

A SUBSCRIBER.

REPLY—Judging from the alarming symptoms mentioned by "Subscriber," it is very doubtful if a cure can be effected. Fomentations in many cases are beneficial, but injury may be done by the use of too hot applications. We would now recommend a light poultice, made of equal parts of oatmeal and flour, and carefully applied. In order to do so properly it will be advisable to bandage the limb below the hock, so as to make a support for the poultice, which must not be applied too tightly. Remove the poultice twice a day, and bathe the hock with tepid water, allowing it to trickle over the sore. Afterwards dress with a lotion composed of carbolic acid, one part, to thirty parts of water. After poulticing for five days, try a pledget of tow saturated with the carbolic lotion, and renew the pledget twice or thrice a day. The horse should be well fed, and if he experiences much difficulty in lying down or rising, it will be necessary to place him in slings.

Another Phase of the Canada Thistle Nuisance.

To the Editor.

Sir,—In the early part of the winter I put a fallow cow up to fatten. For the first month she took on fat very fast, and appeared to be doing well, when she suddenly fell off from her feed, and for two months barely held her own. No change of food seemed to suit her, and although neighbours and myself frequently examined her, we could not find the reason of her loss of appetite.

After she was killed I observed a sore in the tongue, and on examination found that a thistle had become embedded in the centre of the upper side of the tongue, doubtless the cause of her refusal of her food.

I send you the portion of the tongue with the thistle yet imbedded.

C. E. W.

Ancaster, March 7.

PREMATURE LACTATION IN A GRAVID MAIE.—A correspondent states that a mare in his possession "made bag," so that the milk even ran out, nearly two months before the time she was expected to foal. We should have suspected, from the condition described, that the mare had slipped her foal; but that could hardly have escaped the notice of her owner. It is not improbable she may foal before the full completion of the usual term of pregnancy. The case, though exceptional, does not require any special treatment. The diet should be of a quality not calculated to stimulate the secretion of milk, and small doses of Iodide of Potassium—say one drachm mixed with the feed—may be given occasionally.

The wages and general condition of labourers, it would appear from the following in an English exchange, are improving:—At a meeting of the Staffordshire Agricultural Labourers' Society, held recently, it was resolved that waggons, cowmen, and shepherds, shall receive £1 per week for their labour, and that a labourer shall receive 3s. a day for 10 hours, and 3½d. per hour afterwards, winter or summer; that "every cottager living under his employer shall have a written agreement drawn up, to the effect that the said cottager shall receive six months' notice before leaving the said cottage."

A competition of the highest interest to London water drinkers took place at the close of last month, under the direction of Dr. Frankland. The competitors consisted, on the one hand, of certain specimens of the water supplied by some of the principal London water companies; and, on the other hand, of "a sample of London sewage which was allowed to soak through 5 feet of earth." The purpose of the contest was to ascertain which of these fluids could lay claim to the greatest purity, and after full investigation the superiority was given indisputably to the sewage. The analyst reports that "it was found to contain a smaller portion of injurious elements than that present" in the samples of the London companies' water.

The Dairy.

Ontario Dairymen's Convention.

On Wednesday, March 13, and following day, the dairymen of the eastern section of Ontario, under the name of the Ontario Dairymen's Association, met in convention at Belleville. A brief morning session having been occupied with the preliminary business of appointing committees, a very considerable company assembled in the afternoon, in the Masonic Hall, when the President, Mr. K. Graham, opened the proceedings by reading the report of the Committee on nominations, as follows:—President, Mr. K. Graham, M.P.P.; first vice-president, George Morton, Belleville; second vice-president, P. R. Daly, Belleville; secretary, H. F. Willmot, Wallbridge; treasurer, James Bird, Halloway. The report was adopted.

The CHAIRMAN then introduced Professor Bell, of Albert College, who delivered an able and interesting address on the Chemistry of Milk and Milk Products; the mechanical and chemical changes brought about in the various operations of the dairy, and the necessity of the most scrupulous care in all the processes connected with dairying, as well as due attention to the breed and management of stock; the importance of shade and shelter in pastures, with the entire exclusion of stagnant or impure water,—showing that to the presence of living organisms in water contaminated by sewage and other impurities, was due the occurrence of typhus fever and cholera in the human subject, and various disorders amongst grazing animals affecting the wholesomeness of their flesh and milk. He also spoke of cheese in its economic relations, as affording the cheapest and most nutritious diet, especially adapted to developing and sustaining muscular vigour.

He was followed by the Rev. W. F. CLARKE, who congratulated the meeting on the formation of this branch association, on the prospect of an amicable adjustment of the relations between the eastern and western associations of the Province, and on the presence at the meeting of the two most distinguished representatives of the dairy interest in America, Mr. N. A. Willard and Mr. L. B. Arnold. We were indebted, he said, to Americans for the system of associated dairying, and for many other important agricultural improvements, and he trusted that between the United States and this country would be established only friendly competition and a thorough reciprocity of the broadest character. The factory system first started in Herkimer and Oneida counties in New York, was slow to make its way, and encountered many difficulties before it became as now so extensively adopted. In like manner Oxford in the western section of Ontario, and Hastings in the east, were

the banner counties of the dairy interest in this Province. As evidence of the progress which the cheese-factory business had already made in the eastern district, he believed there were in Hastings alone more than twenty factories, and that the make last year was over three million pounds, which sold at an average price of 10 cents per pound, which would amount to \$300,000, a large commercial interest. Already the annual income in Ontario was \$3,000,000, representing at 8 per cent. a capital of \$3,750,000. This he claimed was the result of associated dairying; and the business was deserving the attention not only of dairymen but of commercial men generally, and indeed of the whole community, inasmuch as agriculture was the basis of all our wealth, and the dairy business was a question of food, one of the most important matters to any nation, affecting as it did the physical, intellectual and moral condition of the people. While the factory system was of especial interest to the dairy farmer, it was also of importance to the ordinary farmer. Special dairy farming, indeed, should be the exception, not the rule; for like exclusive wheat growing, exclusive dairying was calculated to deteriorate the farm. A mixed husbandry was truly the best adapted to the want of the many, and at the same time most suitable to their capacities. Incidentally, dairying has brought about a better style of farming,—improving the quality and produce of the soil, increasing the proportion of stock on the farm, and hence increasing the grand source of its wealth, manure; introducing root crops and with them a better tillage; and, as the result of all, enhancing the commercial value of the land. In connection with the subject, one of the most important points demanding attention was the improvement of our meadows and pastures; for while admitting the advantage of soiling cattle, especially at certain seasons, he deprecated an exclusive adoption of the system as being unnatural and not always economical. The excellent management of grass land in Great Britain formed no small item in the superiority of British over Canadian agriculture, and while much of this superiority was undoubtedly due to the character of the climate, yet much was due to conditions that might with advantage be imitated by us, such as the careful preparation of the land for seeding down, the selection of the best forage plants, the mixture of a variety of grasses, and copious top dressings of manure. He then touched on the subject of dairy stock, discriminating between meat and milk points in cattle. He named the Ayrshires and Alderneys as at the head of dairy cattle, but showed that individuals that were good milkers were found in all breeds, and even among our native cows. The care and management of cows were briefly discussed, and pithy rules laid down. He would pass over factory manipulation, as our American visitors would no doubt

deal exhaustively with it. Cheese factories being fairly under weigh, we now want two other branches of the dairy business to follow suit,—butter factories, and condensed milk factories. These were described and their necessity and value shown. In conclusion, the various branches of the dairy business are remunerative. Sudden fortunes are not to be made from them, but they present safe and sure paths of profit. We must expect labour and thought, for the Almighty mandate "in the sweat of thy brow thou shalt eat bread" is still in force, and will be while the world stands. In every part of human industry it is "the hand of the diligent that maketh rich."

At the close of Mr. Clarke's address the President stated that negotiations were in progress for a consolidation of the two associations; that an Act of incorporation had been applied for, and that on its being obtained it was expected that a yearly grant of \$700 would be made, of which sum \$500 was to be appropriated to an annual cheese fair, to be held alternately at Ingersoll and Belleville, and the remaining \$200 to aid the Association, with the understanding that the Convention should be held two years at Ingersoll, and the third at Belleville, until such time as the dairy interest shall have become equalized at the east and west, when the Association shall meet alternately at Ingersoll and Belleville.

The Association then adjourned, to re-assemble at 7:30 p.m.

In the evening the Association met again, and Professor Arnold, of Ithaca, having been introduced to the meeting by the President, delivered a very instructive address, of which the following is but a brief and imperfect abstract;—

MR. ARNOLD'S ADDRESS.

HANDLING MILK.

Mr. Arnold commenced his address by adverting to the importance of an acquaintance with the properties of milk and the variations to which it is liable. The uniformity of milk can only be regarded as partial and comparative—uniform in consisting of certain ingredients, casein, fatty matter, sugar, water, and a small proportion of mineral matters, but subject to considerable variation in the proportions of these ingredients. This diversity is caused by circumstances affecting the cow, such as her food, air, climate, soil, or in the treatment she receives, her condition, the period and continuance of lactation, the breed, the geographical character of the district, &c. The variations arising from the nature of the land are very important to the dairyman. Milk is very different when produced on high and rolling pastures from that produced on low and wet land, and it must be treated differently to obtain the best results. The milk from the dry pasture can go to the factory with but little cooling or stirring, and remain sweet and sound. It requires much more abuse to spoil it than the

milk from wet ground, and it has a much better flavour and odour, and makes finer goods. Milk from marshy ground has a strong, sourish smell, and sours and salsus so easily that it requires to be very thoroughly aired and cooled, to make a passable product from it. Wet and dry seasons require a corresponding variation in the treatment of milk to work it into good cheese.

The food has also a marked effect, and among the various forage plants there is much diversity in the influence they exercise on the quantity and flavour of the milk of the cows fed on them.

Mr. Arnold then explained the composition and microscopic appearance of milk, elucidating the subject by a number of diagrams. He showed that the solid part of milk consisted of a number of globules of oily matter coated with a double pellicle—the casein, albumen, and other matters entering into the composition of this fluid, being in a state of solution. These globules are specially affected by, and reciprocally affect, the changes in the condition of milk. Certain minute organisms or germs, introduced either from the air or from the food, will, under favourable circumstances, develop themselves and grow with great rapidity, causing the decomposition of the milk, and different kinds of germs producing corresponding different results.

The elements of milk, though not firmly held together, do not necessarily and spontaneously fall apart. The fact that milk, without the addition of any antiseptic agent, will keep for six months, shows that there is nothing in itself to induce unavoidable decomposition. But it affords a most favourable medium for the development of these minute organisms which quickly change it.

Moderate heat and moisture are the circumstances under which these ferments grow.

Drying, however, though it checks the development of these organisms, does not kill them. Hence, if taints or ferments are left to dry on milk vessels, they will again resume activity and growth as soon as moisture is applied. Extreme heat will kill many of these germs; so that scalding is efficacious to destroy a large proportion of them. But cold, even to freezing, does not kill them, only arrests their development, which the reapplication of a suitable temperature at once revives.

Everything in handling milk and making cheese depends entirely on managing the different ferments that get into milk, either before it leaves the cow, or afterwards from the air, or which creep into it from the contact of some vessel to which some infection has adhered, or from our putting in some yeast to produce a desired effect, as we do in introducing rennet.

Another effect of these minute organisms is, that in their growth both heat and gas are given off. This is seen in the "sweating" of hay, and the "souring" of bread. Milk comes from the cow full of gas. Some experiments in milk were made recently, from which

it appeared that milk, even when first drawn, was full of carbonic acid gas, and it also contained a small quantity of an offensive gas that had the smell of a stable, on which the "cowey" odour of new milk depends; and, what was unlooked for, both of these gases kept steadily forming in a sample of milk that was kept corked, but carbonic acid only escaped from milk that stood open; and the discharge of these gases kept going on during the whole time of making the experiments, which lasted eight days. Another unlooked-for occurrence was, that milk exposed to the air putrefied first.

Now, the presence of these gases injures the flavour of milk, and the resulting product the sooner, therefore, they are expelled the better. The gas that gives the peculiar animal odour is in minute quantity, but produces a marked effect. It depends on some ferment existing in the blood of the animal, and developed at a high temperature, as under a feverish condition. These germs are not readily destroyed. Even the boiling temperature, though it kills many of them, does not get rid of all. Hence in the process of condensing milk, in which that fluid is twice raised to the boiling temperature before being hermetically sealed, some of these spores still retain their vitality, and occasionally will in time multiply, and spoil the milk.

The best method of getting rid of the animal odour from milk, is to expose it when first drawn from the cow and still warm, in a thin sheet or spray, to the air, then to cool it, so as to check the further development of the spores which give rise to the gas.

Mr. Arnold showed the importance of allowing ventilation in the covers of the cans in which the milk is carried to the factory, illustrating this principle by several striking facts in the history of cheese factories in New York State. He insisted on the importance, after getting the milk in good condition from the patrons, of having everything about the factory scrupulously clean, attributing much of the ill-flavour and bad keeping of cheese to the foul air in the factory, and the superior quality of some of the best make, such as the prize cheese of Dr. Wight to the perfect cleanliness of all the apparatus and premises in which the manufacturing processes were conducted.

After speaking of the conditions necessary to good milk and good cheese, he spoke of the method of handling milk injured, as too much of it is, before it reaches the factory. When the manufacturer has to deal with milk already tainted, it should be subjected to special treatment. It should not be cooled so much as good milk. It should be kept so warm as to induce it to sour. Set at higher heat than usual, and use less rennet. Work and scald high, and for a long time. Expose the curd to the air as long as possible, if badly tainted. Souring counteracts taint and checks its progress, and the higher temperature encourages the souring. If the milk

be too nearly sour, take exactly the opposite course. Keep the milk over night just as cool as possible. Apply the rennet at a lower temperature than usual, dropping the temperature according to the degree of acidity, and use more rennet, and work at a low heat, and fast; scald low or not at all, putting to press without delay.

Tainted milk and sour milk should be handled with exactly opposite treatment. One great difficulty with cheese from tainted milk is, it cures too fast; it becomes cheese too soon, and hurries on to decay. With our sour-milk cheese it is the reverse, it does not cure quick enough; instead of becoming it dries down. The rennet spores grow faster than the sour milk spores at low temperatures, and hence this course helps the rennet to get ahead. We should labour to make one cure slow, and the other fast.

The subject of pasture grasses and forage plants, as they affect the milk and its products, came under notice, Mr. Arnold giving the preference to blue grass, or June grass as it is more commonly called by us, and recommending a mixture of this grass with white clover as the basis of a good dairy pasture. Meadow fescue and the branching peas were also good grasses; but red clover, especially fresh and rank, rendered the milk hard to deal with in making cheese, and never produced cheese of such fine quality as that made from the grasses recommended. Green corn produced a large flow of milk but was apt to make it watery, and to produce a cheese somewhat wanting in flavour, though it did not impart any disagreeable quality.

Mr. Arnold, in conclusion, briefly but emphatically reiterated the grand requisites in successful dairying: sweet feed, pure water, pure air, careful management, and scrupulous cleanliness in all the operations, vessels and appliances connected with the dairy.

In the course of the lecture a number of questions were put to Mr. Arnold, to which he gave judicious answers. Among these inquiries were the following:—Was it possible to make good cheese from tainted milk?—Mr. Arnold thought a passable cheese could be made by proper manipulation but never a first class article.

What was the cause of tainted milk?—Ans.—The introduction and development in the milk of some unusual ferment, or the growth of which gas is set free. The ferment on which animal odor depends, always takes a prominent part in producing tainted milk.

What effect has scalding whey to cows?—Ans.—The milk does not keep well, and the cheese is inferior in quality and soundness.

Is the influence of crowded stables, and of milking in such stables injurious?—Ans.—Yes.

Should not the milk be carried to the factory in canvas-covered waggon?—Ans.—Certainly; exposure to the sun's heat in the journey to the factory was most injurious.

In cooling milk, was it admissible to put ice into the milk?—Ans.—No; the milk was not only thereby diluted, but altered in properties.

Was ice outside the milk can a good cooling application?—Ans.—Yes, under proper regulation. The milk should always be aerated before or during the process of cooling; and sudden or extreme changes of temperature were undesirable.

After the conclusion of the instructive address, to which this sketch aims to do justice, the meeting adjourned till the following morning.

SECOND DAY.

The Association met again on Thursday morning, and the session was occupied with the discussion of various questions affecting the dairy interest.

The first question—"Is Ontario well adapted for dairy purposes?"—was introduced by Hon. R. Read, who maintained that the Province was pre-eminently excellent as a dairy region, on account of its climate, its comparative freedom from malarial or epidemic disease, its pure and abundant water, the character of its native and cultivated grasses, and its capability of growing the most valuable cattle fodder—Indian corn. The success also of the factory system, the excellence of Canadian cheese, and its growing favour in the English market, afforded additional evidence of the fitness of the country for this branch of agriculture.

Mr. Martin spoke to the same effect, and considered that Canada was perhaps better adapted than any portion of this Continent, except some favoured districts in New York, for the dairy business. The Southern latitudes were unsuited to the purpose. He believed that when the cheese made was of inferior quality, the fault rested with the farmers, and not in the country. He read letters from Messrs. Corderoy & Co., of London, England, asking in high terms of the excellence of some Canadian cheese, especially that known as Canadian Cheddar. He believed that cheese should be the export business of Canada, and stated that he could ship cheese to England, the chief market for the product, at less expense than he could ship flour from a factory in New York State, to New York or Baltimore. He believed the business to be remunerative both to the manufacturer and the farmer, and had no doubt it would steadily increase.

This question having been laid on the table, the next in order—"The best breeds of stock for dairy purposes"—was opened by Mr. Nimmo, of Naponee. He spoke after an experience of nearly twenty years in Canada, and would dissent, say that the Angus and the Galloway breeds were useless as milkers. He had found excellent milkers among the "common Canadian" cows, and believed these judiciously selected for their milking qualities, crossed first, for a year or two, with a pure Durham bull of a good milking strain, and the heifers put to an Ayrshire bull, would produce the very best milking stock. He had on his farm a Canadian cow that yielded daily 55 lbs of milk; another, crossed with Durham, that gave 17 lbs of butter in a week. He insisted on good care and keep as essential to bring out the good qualities of any breed.

Mr. H. Brodie, of Prince Edward, spoke in favour of Ayrshires. He thought advantage would be gained by crossing once or twice with a well-selected Durham, and then reverting to the Ayrshire.

On the third question, as to the best grasses for milch cows, Mr. Bicman, of Colborne, led the discussion. He believed a mixture of clovers, including always a proportion of white clover, with timothy, afforded the best feed. Objected to the rank growth from barnyard manure, and preferred top dressing with ashes, salt and lime.

The discussion was at this stage interrupted by a recess; but on re-assembling in the afternoon the subject was resumed, and Mr. Arnold again spoke in favour of blue grass and white clover. Mr. Nimmo and others denounced red clover for milch cows; but several speakers contended that this crop was absolutely essential to successful farming in Canada. Mr. Arnold admitted its value to the land, but believed

that while it would yield a large quantity of cheese, the working was rendered more difficult, and the quality was never the finest. He would not banish red clover from the farm, but he would not feed it to cows from which he expected to make a first-class cheese.

The Chairman then introduced Mr. Willard, who delivered a valuable address, which was received with every mark of interest and appreciation by the audience.

Votes of thanks were then passed to Mr. Willard and Professor Arnold, as well as to Rev. W. F. Clarke and Professor Bell, for their addresses. A similar acknowledgment was made to the Masonic fraternity of Belleville, for their kindness in placing the Hall at the service of the Association.

A brief discussion followed on the method of hauling milk from the farm to the factory; and Mr. Frederick read a paper on curing cheese. In connection with this subject Mr. Arnold mentioned that it had been found advantageous to use a mixture of whey butter and lye in greasing the cheeses, as the addition of the lye tended to keep away the skippers.

At the suggestion of Mr. Caswell, of Ingersoll, the convention passed a resolution to attempt the establishment of a regular cheese fair at Belleville, and a committee was appointed to carry out the resolution.

After some further discussion of a somewhat desultory character, the convention was brought to a close at a late hour in the afternoon.

MR. WILLARD'S ADDRESS.

THE PRODUCTION OF MILK.

It is a gratification for me to be present at a Convention of Canadian Dairymen in this part of Ontario. I have high respect for the people of this Dominion, among whom I esteem it an honour to have many warm and steadfast friends. I have always urged that the two great nations upon this continent—nations springing from the same blood, speaking the same language, having all the essential elements of character—the love of freedom, of law, order and progress—should maintain amicable relations, and extend to each other those courtesies of civilized life which conspire to the elevation and well-being of the race. Separated only by an imaginary line, we have many things naturally in common, and neither nation can impose harsh rules and restrictions affecting a common interest without having them return and strike back upon the aggressive party.

The United States and this Dominion stand somewhat in the same relation to each other as men occupying neighbouring farms. Each governs his own household, and conducts his own private affairs, as matters which admit of no interference; but a true Christian spirit, a regard for the usages of society, for morality and civilized life, demand that the relations between the two should be harmonious, and such as will promote the highest welfare of each.

I should esteem it a calamity to the United States should anything occur between the two nations to destroy that friendly feeling

which I believe lies in the great heart of either nation the one for the other, and I can assure you I have no sympathy with those mischievous politicians and restless adventurers who seek from time to time to create bad feeling and destroy confidence, whether it be under the garb of legal enactments or illegal illustrating.

I think you have done well to organise a Dairymen's Association in this part of the Province. It means progress and improvement in a specialty which of late years has made rapid advances towards perfection. These associations have become distinguished as among the remarkable educators of modern times.

The history of organizations for the discussion of topics relating to the dairy goes back no further than January 6, 1864. The first Convention, occurring at Rome, N.Y., was most remarkable in its result. The call was made by about 40 leading cheese manufacturers and dairymen, among whom, Jesse Williams, the originator of the factory system, was prominent. There was an immense gathering, crowding the largest hall in the place, and people in all parts of the State were anxious to get newspapers reporting the meeting. Since that time there has been a large number of dairy organizations formed—State and local—and the knowledge diffused on this subject is extensive, and its value can scarcely be estimated. I think I may safely say that there is no branch of agriculture that has made such rapid strides as that relating to the dairy. I think there is none in which you will find minds more intelligent or more ripe for investigation. I know it is sometimes said that this factory system, and these dairy conventions, have been an injury to the dairy business. There is nothing more illogical or illusory. Had it not been for the factory system and the spread of intelligence which has exerted such a power in the education of manufacturing, the dairymen as a class would long since have been ruined. Contrast the general product of cheese to-day with what it was so late back as 1860. In 1859, Samuel Perry, of N.Y., contracted the great bulk of cheese made in the State at 10 cents per pound. Much of this cheese was so poor, so utterly worthless as an article of food, that it had to be thrown into the docks. We had no name abroad, and our cheese in England was only considered fit for paupers or people of the lowest class. Even this class took it only as a necessity and because it could be had for a mere trifle. There were immense losses, every now and then, among persons who handled cheese, on account of its inferior quality and the difficulty of keeping it. Do you suppose that without this flood of intelligence that has been poured in upon us, the cheese of to-day would have been any better than the cheese of 1859? Why, my friends, we have revolutionized the feeling in England, and forced that nation to admit that American cheese is quite equal to the best English manufacture; while the

bulk of our exports is regarded as superior to the bulk of English make. The English people find it more and more difficult to compete with us in quality, and are now turning their attention to the factory system as a means of solving this difficulty. But by the better character of our cheese we have created an immense home market, which could not have been secured on the old quality of cheese.

The great bulk of Herkimer county cheese, as it was made 15 years ago, was soft, slushy, liable to fall in pieces, easily tainted, and not unfrequently alive with skippers.

Could this cheese make such a way in the market as the "fancy cheese" of to-day? Could you or I be induced to buy and eat freely a poor and imperfect cheese at any cost? No, no—the people want a good thing—something that is attractive in flavour and gives pleasure in the eating.

I question whether intelligence or progress ever injured any people. No, my friends, the world moves, and progress has been vouchsafed us by a benedict Creator. In proportion as we become more fully acquainted with the laws and operations of nature, so shall we be more competent to combine our opinions and form correct theories.

If by the fan of knowledge you can winnow away the chaff of error, you may thus separate the kernel of truth in a purer form, but we must be guarded lest we lose the precious corn of truth. It has been done before. It is not from knowledge that we need have cause of fear, but rather from ignorance.

The world is full of error. It travels fast and far; it is at war with progress; it seeks to insinuate itself under the garb of truth in every experiment and into all our operations. It is the great arch-enemy which must be met at every step and overcome.

We are constantly elaborating and copying from what has gone before us, and it sometimes takes ages to find out how foolish men were in remote times.

Take, for instance, the theory that the earth was a plain, and see how many ages passed before it was overturned and a spherical form of the earth established. For many years, and nearly up to the present day, we had a theory in regard to the elaboration and circulation of sap in trees; and another theory in regard to the origin of heat from the sun.

Recent investigations have shown that there was no foundation for these theories, and they have been abandoned by scientists. The recent researches of the chemists, and the wonderful discoveries made by the use of the microscope, have uprooted and annihilated many things that were once considered positive knowledge, well grounded in science. It is now held by scientific men that those dreadful scourges, the cholera, the yellow fever, the black tongue, and the vast range of epidemics which afflict people, and the origin of which has been a puzzle to the medical profession, are due to a species of fungi, living organisms which pervade the atmosphere from time to time in countless numbers, and are inhaled with the breath, when they enter into the circulation, feed upon the tissues, and poison the blood. The microscope reveals these organisms, and recent experiments in bottling air and transporting it from the infected districts, leave no doubt that these organisms can be carried from one place to another, and thus commence at one to multiply and spread disease among those who breathe the air where they have been introduced. Even in the common whooping cough, the mucus accumulating in the throat has been found to be alive with

organisms, peculiar to that disease, and that they carry the infection to healthy subjects. The microscope is revealing many curious things, and is overturning theories that were once supposed to be settled beyond question.

The last half century has been more fruitful in the practical application of principles for the betterment of the race than any previous fifty years of which we have any record.

The application of steam to ocean and land travel, the transmission of intelligence by telegraph, the adaptation of machinery for manufacturing purposes, and for farm work, the utilization of various earthy deposits, all have been of infinite advantage in ameliorating the condition of men. Prof. Wilson has well remarked that our science ministers only to the physical necessities of men. It does not acknowledge his imagination, or directly concern itself with his ascription of beauty to some things, and of ugliness to others. It does not acknowledge his heart, or take heed of his loves or his hates, his exaltation or despair. It does not acknowledge his conscience, or care about right or wrong, or affect any interest in his moral welfare. It does not even pay court to his intellect, or profess sympathy with his cravings after knowledge for its own sake, his impatience of ignorance, and longings for perfection. It knows him only as the paragon of animals, the most helpless, though most gifted of them all, it seeks only to meet his fleshly wants, to enlarge the practical empire of his senses; to make his arms stronger, his fingers nimble, his feet swifter, and, with help from Hygienics, his form more stalwart, himself a more smoothly running, well ordered living machine. Putting aside, then, all questions of beauty, morality or philosophy, we are to consider where man can acquire the knowledge which will give his body the victory in the daily battle of life.

To solve this problem he must fall back upon the sciences which reveal the properties of matter, and the modes of altering it. Thus to take a complex but striking example: through observational science we may discover a soil more or less fertile all the world over; but transformational science must show us how to fence and till it, how to drain or irrigate, or manure it, before it can be made a fruitful field. Geology, striving ever to reach nearer to the centre of the earth, finds coal for us, chemistry teaches us how to coke, i. e., literally to cook this raw material, and how to distil it into naphtha and gas. Mineralogy selects iron ores for us; Chemistry converts them into steel, and Mechanics forge that into bars.

Descriptive Botany plucks a wild currant, Physiological Botany changes it into a sweet grape, Chemistry ferments it into wine, and transforms that into ether. Descriptive Zoology lays its hand on a caterpillar, Physiological Zoology nurses it into a strong silk worm, Chemistry bleaches and dyes the silk which it spins, and Mechanics weave it into velvet.

People of this age have the means of enjoying more comforts than they did 50 years ago, but that they do not in many instances is because they fail to see what is practical and how to adopt it.

The history of labour, ever since its expulsion from the Gardens of Paradise, is, says Mr. Ball one of hardship, of suffering, and of humiliation. The mighty structures that he scattered along the banks of the Nile, the wonderful ruins that whiten the sands of Asia, the magnificent temples erected to the gods of Athens and of Rome, the huge localities of Southern and Central America, all tell of the ignorance and the

helplessness of labour, and its complete subordination to the educated and governing classes of the world. Only here, where the sun of freedom lights up the halls of learning and the chambers of its legislation with its heaving splendor, has labour risen to the true dignity of citizenship, and become a power in the State which it supports and enriches.

Heretofore, manual skill and dexterity were sufficient. While invention slept in the arms of ignorance, and discovery stood bound to the portals of the church; while the labourer was satisfied with the clumsy tools, rude dwellings, and coarse fare of a hundred years ago, there was no motive and no need of cultivating the intellect or invoking the aid of other powers than reside in broad shoulders and strong arms. It was only to repeat to-day the wearisome labour of yesterday, and renew to-morrow the hopeless toil of to-day. But now the scene is changed. Discovery, no longer the servant of superstition, has explored the deepest recesses of Nature, and solved some of its profoundest mysteries. It has explained the composition of the soil, and traced its elements into the plants and trees which cover and adorn its surface. It has shown that animal bodies are built up of precisely the same material that compose the grains and grasses upon which they feed, and it has followed these materials when liberated by death and decay back to the earth from whence they were taken, thus demonstrating the great law of Nature, which makes a fertile soil necessary to the healthy development and vigorous condition of animal life. It has studied the character and learned the uses of many of the forces of Nature by which it has been able to harness the elements to the car of civilization, and make the invincible powers of earth and air agents of human progress, and while crowning with immortal bays the brow of learning, it has poured its richest treasures into the lap and around the feet of labour.

Society, led by science and the arts, attended by wealth and fashion, makes every day larger demands upon its members, and requires a different life from that our fathers led—one more in accordance with its past achievements and future expectations—better houses, richer furniture, handsomer grounds, costlier entertainments, higher personal graces, broader hospitality. As wealth increases, and knowledge becomes diffused among the people, these demands will be diversified and augmented until everything offensive to taste and Christian morals will be excluded from the land, and society reach its best and highest estate.

You see now the reason and the necessity for the education of labour. You see now, with whatever degree of success our ancestors drew their support from the soil, we, even by the practice of the same prudence, industry and economy, can arrive at no such result, partly because advancing civilization has multiplied our wants and increased our duties, but principally for the reason that in our attempts to subdue the earth and exercise dominion over it, learning is a weapon which gives to its possessor an advantage for which no amount of industry, no degree of economy, and no powers of bodily endurance, can compensate, and hence the impossibility of successful competition for the rewards of agricultural industry, while the farmer remains ignorant of these discoveries in science and inventions in the arts which have revolutionized labour, and made brain superior to muscle.

The dairyman and cheese manufacturer must now bring to his occupation an amount of knowledge altogether beyond what has hitherto been deemed sufficient, and know

of no way by which this knowledge may be made to strike so deeply and rapidly into the minds of the masses as by the instrumentality of associations and conventions like this.

Many farmers think it entirely sufficient to study Nature and copy her processes. These men hold fast to the traditions of their fathers, and rejoice in following a system that is independent of science and the arts.

Nature never reared a Flying Childers, nor a Flora Temple; no lordly Durhams nor sleek Devons roam in her forests; no Leicesters nor Southdowns feed in her pastures, no golden cereals ripen on her prairies; no melting fruits load her orchards; but the yellow maize waves its leafy banners, and the tall wheat bends its imperial head in graceful homage to the intelligent husbandman, who by a new creation has added these products to the means of human existence. The trees of the orchard and garden reach out their perfumed branches, and drop their purple treasures into the lap of the successful cultivator, whose art has conquered Nature and crowned the hill tops with golden fruitage. So in the cheese-making art, the dairyman who stands idle, following old traditions, will soon find that his product is not wanted in the markets of the world.

If Canada hopes to retain her rural population, and keep pace with the advanced civilization of the age, it must be done through the efforts of agriculturists and agricultural associations, where the best men shall be drawn together for discussion, and where the experience of the best farmers shall be interchanged—men who can warm into honest enthusiasm concerning the capabilities of Canada farms, instead of belittling and bemoaning home, and glorifying other lands. Here your statesmen, your editors, your eminent profound men, should meet and indicate by their presence and counsel that they have an interest in the welfare of this Dominion, that they have faith in her resources, that her magnificent scenery, her healthful climate, her established institutions of learning, and her sweet and nutritious pastures still hold out inducement for the rising population to make a home and competence for themselves in her charming valleys and upon her verdant hills.

When Jesse Williams, the unpretending farmer of Rome, in 1850, conceived the idea of Associated Dairies, it was forced upon him as a necessary means for accommodating members of his own family. He had not the remotest idea that he had hit upon a great principle that was of wide application, and which was destined in all coming time to be the means of lifting heavy burthens from the arms of toil.

But aside from the burthen of toil and the drudgery from which this system operates to relieve our farmers, it has developed another great economic principle—the means of producing food cheaply—a principle which the Creator, in his infinite wisdom, it seems to me, is now impressing upon the minds of people by the establishment and widespread dissemination of this system. The question of food in all densely populated countries is one that underlies all others. No nation can rise to the highest civilization and power without her people are supplied with an abundance of cheap and nutritious food. Where food is scarce or wanting in nutrition, there you will find poverty, squalid wretchedness, demoralization and crime, elements of weakness opposed to progress and civilization.

Food nourishes not only the body but the brain, and the cheapness and abundance of good food here had much to do in the rapid progress and active development of mind

among the American people. But our population of the United States is increasing with wonderful rapidity, and already the supply of meats is becoming comparatively scarce. They are to-day at such a price that poor people have a difficulty in obtaining them. As our population increases, there will be a still further scarcity of meats for the supply of our people. Some other form of animal food must be substituted for beef; and the question is becoming every year more and more urgent—how can it be produced cheaply? And in my opinion we must look to the dairy as the chief means of solving this difficulty. I can illustrate this more satisfactorily, perhaps, by showing a comparison between the relative cost of producing beef and cheese. A steer which will weigh 1,700 pounds at four years must be a good animal, and will yield say 1,000 pounds of meat. Three steers at four years, on the above assumption, would produce 3,000 pounds of beef. Now, a good cow will yield from 500 to 600 pounds of cheese per year; deducting the first two years in which as a heifer she yields nothing, we have 4,500 pounds of good animal food. In other words, three steers at four years old, representing twelve years' growth of beef, amount to 3,000 pounds; while one cow, twelve years for cheese, yields 4,500 pounds.

But a pound of cheese is equal in nutrition to two pounds of beef, which would make the difference still greater, giving for the dairy 9,000 pounds of food on the one hand, against 8,000 pounds of meat on the other. Then, there is the cost of cooking and the time to be charged against the beef, which, as you will see, add further to the expense of that kind of food.

Who shall say that in the mysterious workings of Providence the establishment and spread of the factory system has not been for some wise purpose more beneficent than that which has been commonly assigned to it, and that in coming time millions of people are to draw their supplies of animal food from this source.

In regard to milk as an article of food, Dr. O. C. Wiggins, inspector of milk in Providence, says: "The nutritive value of milk as compared with other kinds of animal food, is not generally appreciated. There is less difference between the economical value of milk and beef-steak, or eggs, than is generally supposed. The quantity of water in a good quality of milk is 86 per cent.; in a round-steak, is 75 per cent.; in fatter beef, 60 per cent.; in eggs, about 68 per cent. From several analyses made last winter, he goes on to say:—"I estimate surlin-steak (reckoning loss from bone) at 30 cents a pound as dear as milk at 24 cents a quart; round steak at 20 cents a pound as dear as milk at 14 cents a quart; eggs at 30 cents a dozen as dear as milk at 20 cents a quart. Many labourers who pay 17 cents for corned beef would consider themselves hardly able to pay 10 cents for milk, when in fact they could as well afford to pay 15 cents. Milk is a most wholesome and economical food for either rich or poor. It ought to be more largely used. If the money expended for veal or pork were expended for milk, I doubt not it would be an advantage both to the stomach and pocket, especially during the warm season. Relatively speaking, then, milk at 10 cents or even 12 cents a quart, is the cheapest animal food that can be used. Whether farmers can afford to produce it cheaper is a matter for them to decide. It is very probable that were they to ask 12 cents, a very large number of poor people would refrain from its use from mistaken notions of economy, notwithstanding they are excessive meat eaters."

But it has been urged that there is likely to be an over-production of dairy products,

and therefore it must be unsafe to enter upon dairying. It is now twenty years since this prediction was made, and yet we come no nearer its fulfilment to-day, it would seem, than when it was first assumed. We are producing 704,000,000 pounds of butter, and 270,000,000 pounds of cheese per year. The butter is nearly all consumed among our own people, or at least there is but little for us to export. We send abroad annually about 60,000,000 pounds of cheese, but the time is coming, in my opinion, when all our cheese will be needed for home consumption. Our annual consumption of late years has increased at the rate of 13,000,000 pounds per year, and that there is still a margin, may be seen from the following estimate.

Our population is now about 40,000,000. Say that each individual should take only one ounce of cheese per day, or a third of an ounce at each meal, simply as a corrective of other food, and this same quantity, distributed among our 40,000,000 of inhabitants, would make an annual consumption in the United States of 940,000,000 of pounds, which is 600,000,000 of pounds more than we are producing. But suppose we deduct 10,000,000 of inhabitants as non-consumers, and allow only half an ounce per day for the 30,000,000 of people, and we have an annual consumption of cheese amounting to 342,000,000 of pounds, which is still about 100,000,000 of pounds more than the whole country produces. The fact that cheese is a wholesome, nutritious, and economical article of food, one of the cheapest luxuries of the table, must, it would seem, bring it largely into use.

TO BE CONTINUED.

Raising Calves.

Dairymen are too much in the habit of killing their calves—saving only the skin, and then purchasing cows as needed, from the scrubs sent to market. This is a very short-sighted policy. The cow is the stock-in-trade of the dairyman, and his efforts should be directed to producing the best possible cow for milk. This can only be done by long and careful breeding. He should have a bull from one of the most approved milking-breeds, and then save the heifer-calves of his best milkers.

But he thinks he cannot afford to spare the milk to rear the calves. It is not necessary to use new milk more than a few days. When the calf is one week old, skim-milk—with one tablespoonful of oil-meal, dissolved in boiling water—will keep the calf thriving finely you can scarcely perceive the change. When two or three weeks old, add a small quantity of finished middlings or shorts, oat-meal, barley-meal, or pea-meal, cooked. Cooking renders the food much more soluble and easily digested. Teach the calves to eat hay or grass young. This will develop the first stomach and give a cud to chew. As soon as there is a good bite of grass, give calves a run, where they can get plenty of it; but do not forget to continue the other food. Whey, with oil-meal—or the other foods mentioned—will grow a fine calf, but not whey alone. Three dollars invested in these extra foods will grow a heifer that no dairyman need be ashamed of. We have raised many heifers that would weigh 800 pounds and upwards at 24 months old, without feeding them any new milk after the first week.—*Live Stock Journal*.]

Butter-Making.

The following condensed exposition of butter-making, as practised by our best butter-makers at the present time, we copy from the *Country Gentleman*.

The production of milk for butter-making is essentially the same as that for cheese-making. There is the difference to be observed, however, that, whereas, in the first, principally to the quantity of cream in the milk; for butter, we must collect the whole of cream entirely. It must be separated accordingly. For both purposes, the same care as to cleanliness, quality of food, purity of water, and gentle treatment of the cows, should be observed. The milk in both cases needs to be aired and cooled soon after milking.

From this point quite different handling is required. For cheese, we constantly agitate the milk to keep the cream from rising; for butter, we must set the milk to rest as soon as possible, and not only avoid all stirring, but not allow it to be even jarred. The more perfect the rest, the more completely the cream will rise.

It is still a subject of debate as to whether the cream rises better in shallow or deep dishes. But it is certain that it will rise in either kind of vessel, if all the other conditions are right. The tendency is toward setting milk in deep pails and in large masses.

There is no dispute as to the propriety of cooling the milk, or of keeping it in a moist atmosphere and in a light room. Moisture prevents the cream from drying on the surface and making flacky butter, while light is essential to develop the colour so much desired.

The temperature, it is asserted, may be allowed to go lower for butter than for cheese. We would not allow it to go below 55 degrees for butter, and believe it would be better to keep it at 60 degrees. The best temperature for churning is admitted to be between 60 and 65 degrees—the latter for cold and the former for hot weather, making a mean temperature of 62 to 63 degrees as the proper point. Possibly different dairies may require a slightly different temperature. The cream should be allowed to become slightly sour, if a good keeping article is required, but care should be taken that the cream does not get too old and seriously injure the flavour. Sweet cream makes the best flavoured butter, but the yield is smaller, and it does not keep so well.

The best method of churning has not yet been determined. Many patent churns have been presented to the public, but none of them have been any real improvement on the old-fashioned dash churn. There is some dispute as to what causes the separation of the butter from the milk. Some say it is in the concussion; some that it is in the incorporation of the air with the cream. Certain it is that the agitation is necessary. Forcing air through the cream while agitating it

makes the butter separate quicker, but it injures the quality. What is wanted is some method that will agitate every particle of cream alike, making the butter all come at once, and of the same texture. By every method yet devised, there is some cream at the sides, corners or ends, that does not get so much churned as the rest. This lessens the yield and lowers the quality uneven. At least, the butter should be churned in a tub. When the milk is churned, it is very thick and heavy. The yield of butter is 120, but it contains more water, and is therefore inferior. More power is applied to churn with.

If the butter comes firm and solid, and separates freely from the milk, but little working will be required to expel the buttermilk. The less it is worked the better, if the buttermilk is got out and the salt is evenly incorporated. It is better to wash the butter than to work it too much without; but whether worked or not, the buttermilk must be expelled, or it will injure the flavour and the keeping quality. Indeed, it is asserted that pure butter will keep almost indefinitely without salt. But such butter can not be produced by ordinary process. So salt must be added to make it keep. The quantity used by our best butter-makers varies from one-half to one ounce of salt to one pound of butter. Some salt considerably higher, and go entirely by the taste. Enough salt should be used to convert the remaining buttermilk and water into brine, or the butter will soon lose its flavour and become rancid.

Butter factories, as well as cheese factories, are becoming popular. Some skim all the cream they can, and then feed the milk to hogs or calves. Some skim only the night's milk, and make the milk into cheese. A very few make skim-milk cheese, for which, however, there is but a very limited demand.

Percentage of Cream.

From a table showing the average percentage of cream for each day and month in the milk worked up at the Derby Factory (England) during the season of 1871, it appears that there is considerable variation, and that as a rule there is less cream during the hottest weather. The following summary gives the highest and lowest daily percentage, and the total monthly averages for the seven months during which the observations were recorded:

MONTH.	LOWEST.	HIGHEST.	AVERAGE.
April.....	9½	12	10.66
May.....	8	10½	9.9—31
June.....	7	10½	8.75
July.....	8½	10	8.25—31
August.....	8	11	9.12
September.....	10	12	10.875
October.....	11	12½	12.49

Canadian Butter.

To the Editor.

SIR,—We have received our *Price Current* from London of the 10th ult., and give the following quotations of butter:—Carlow, 110s to 130s; Cork, 126s to 130s; Limerick 110s to 112s; Dutch 160s to 131s; Kid, 160s to 140s; Normandy, 160s to 146s per cwt.

By the same mail, from our agents at Montreal, our advices are as follows:—“Butter is very dull; cannot be sold here except at reduced prices. There has been an auction sale at Liverpool of 2,800 packages, at prices ranging from 4s. to 70s.”

Look on this picture and on that. Here is Irish, Dutch and French butter selling at twice and thrice the price of Canadian; and if the price of English was quoted, the difference would be still greater; but this is sufficient to show that Canadian butter is of a lower grade than from either of the above-named countries, and, in fact, the lowest grade that comes to the English market. This low value is echoed throughout Canada from east to west, and the reports of the markets show that a large quantity has passed over at the price of grease, and there is at the present time a far larger quantity for which purchasers cannot be found.

Now, Sir, is it not a sin that the bounties of Providence should be thus wasted? And is it not a disgrace to the agricultural classes that this state of things should exist? But why is it that the butter of Canada does not take as good a position in the markets of the world as that of other countries? It is not because Irish, Dutch, or French farmers, and their wives, are more intelligent or more cleanly than those of our own land, but simply from the system adopted in the rural districts by very many of the small farmers and dairymen, of disposing of their butter weekly to the storekeeper, who takes it mostly as a convenience to his customers and in exchange for goods. It then remains in his store for several days exposed to light, heat and dust, until the accumulation warns him that it is time to do something with it, and after a second manipulation and a considerable addition of salt, saltpetre, and sometimes sugar, it is consigned to the firkin. This is bad enough; but worse is behind, for, as is generally the case, no assortment is made in respect to colour, and the richest and poorest—the golden and the white—are thrown indiscriminately together and pounded up. What is the result when offered on the market and subjected to test? A composition of rancid, pasty, variegated coloured grease—certainly unworthy of the very name of butter. We are now writing of what passes under the name of store-packed butter; and, as time goes on, the longer it is kept the worse it becomes. But with regard to dairy-packed the case is different, and where a sufficient number of cows is kept to

fill a firkin weekly or fortnightly, then we get a superior quality, but still not of so high a grade generally as might be obtained with a little extra care.

Now, we would suggest the remedy for the improvement of butter packing. First of all to the storekeeper: if you intend to pack butter through the next season, and as you mostly receive it in small parcels from persons who keep but two or three cows, insist upon their churning twice a week; or, if the quantity of cream is too small for that, request them to stir the cream daily, adding a few grains of saltpetre to preserve it for the weekly churning. As soon as the butter is made, and with a moderate amount of fine rolled salt, let them bring it to the store, and the same day put all of an uniform colour into the firkin, slightly salting the bottom and sides; and if sufficient is collected to fill at once, put on the fine cloth, spread a small quantity of salt on it; then head up, and put it in a cool dark cellar. If you have not sufficient daily to fill a firkin, then cover the surface of the butter with brine, to be poured off when more butter is to be packed, and renewed until the same is filled. The greatest care should be used in the handling of the butter, not to overwork it in packing. All that is necessary is to press it close and firm in the tub. A very moderate amount of salt will preserve it for months, if not exposed to light and heat.

To those who keep a dairy of cows, and who take a pride in having every utensil as well as their dairy, scrupulously clean, but little may be told, but they will pardon us forgiving a few hints for improvement. We would repeat to them what we have already stated—to churn twice a week or oftener—to keep the cream stirred daily (to prevent it drying on the surface), adding a small quantity of saltpetre—to roll the salt as fine as possible, and to use it moderately, so as not to destroy the flavour of the butter—to pack it in the firkin fresh from the churn—to keep the brine on the butter in the firkin until filled, and to cover up and keep in the dark until marketed. It is always to be borne in mind that mild cured butter will command a far higher price than that so impregnated with salt that you can taste nothing else.

We beg pardon for trespassing so much on your valuable space, but our object is to bring before your country readers the reasons why our butter is thought so little of, and how it may be raised to an equality of grade with that of other countries. We have seen butter in Canada of fine quality, and with common care and attention the whole might be preserved, and would command as high a price as first-class Irish. We could export any quantity to the markets of England and Scotland at a remunerative price to the dairyman if quality was equal; whereas the wretched stuff with which our markets are stocked is unsalable.

G. A. CHAPMAN & CO.

Toronto, March 6, 1872.

Feeding Cows Before Calving.

There is no time when the cow needs more nutritious food or better care than during the latter part of the period of gestation. She has then not only to support the demands of her own system, but that of the growing calf. And this calf, at birth, will generally weigh 100 pounds, which is nearly

all made in the last 150 days. Besides, the cow—if a good one—gives milk until within 60 or 70 days of calving. This renders it evident she needs a generous supply of nutritious food. For thirty to forty days before coming in, the cow should be fed with especial reference to increasing her milk secretions. Many feed corn meal, but our experience is not favourable to large quantities of this food. It contains too much starch or carbonaceous matter, and develops a tendency to fatten more than a flow of milk. A small quantity of corn meal with double the quantity of wheat bran, made into a slop, is much better. Ground oats and pea-meal, mixed with corn meal, make excellent feed for cows in the spring. But, when easily obtained, oil-meal should not be forgotten. This is very rich in phosphate of lime or bone material, as well as in nitrogenous or muscle-forming matter, together with ten per cent. of oil, which seems to be most soothing to the system. We have used one pint of oil-meal per day to each cow, for thirty days previous to calving, with great profit. It seems to contain just what the cow needs; assists her very much in calving, and she is much less likely to be troubled with garget or other diseases of the udder. We believe two dollars expended in extra feeding, before coming in, will pay five dollars in milk, besides rendering the cow less liable to disease. If the udder becomes too much distended, or is likely to creak, you should milk sufficiently to relieve her before calving.—*Live Stock Journal*.

Apiary.

Bee Hives.

The increasing demand for frame hives has brought into the market numerous patterns, their respective vendors claiming for them some peculiar feature or novel construction, giving either to the bees or bee-keeper some great advantage over other patterns, and for which they hold a patent.

I would here inform bee-keepers that every feature of a bee-hive of the least utility or practical advantage has for years been covered by a patent in Canada. The science of bee culture must first discover something new in the nature and habits of the bees before anything of any practical importance can be added to the present patented frame hives. It does not follow, because a man has been a bee-keeper for thirty or forty years, that he understands bee-culture, or is at all capable of constructing a hive adapted to the wants of the bee. Such a person, however, becoming interested with his bees, may think of some novelty, and innocently, but ignorantly, suppose he has made a discovery, or invented something worthy of being patented. Accordingly, drafts of the novelty are made out, in connection with some form of hive, and claims made for a patent, which is granted by the proper authorities, who neither know nor care about the merits of the claims presented.

Thus every year hives of novel construction are patented, and brought into the market, and by advertising largely, claiming wonderful advantages over other hives, many are sold to those who are easily induced to purchase anything novel, without due consideration as to its utility. Not meeting the expectations raised, nor proving to be what they were represented, they fall into disuse. The consequence is, all frame hives are looked upon suspiciously by those who have been duped, and they are ready to doubt whether any improvements have or can be made in the management of the honey bee.

It should always be remembered that simplicity is necessary in the construction of a good frame bee-hive. Every feature in a hive not actually useful is always objectionable. Hives whose frames are constructed with a centre bar half way from the top of the frame to the bottom, as in the Moon hive, or with a "central stile," as in the Otts hive, are very objectionable. While they are not required for the support of the combs (as claimed), they take up important space, and are often the cause of the combs being built crooked. If of any benefit, they can be used in any hive, as they are common property, and not patentable; any claim founded upon them is not valid. A honey-board, made with "ventilating apertures" in it, covered with a button, as in the Otts hive, is not new, and no claim thereon is valid. Notched pieces to hold the bottom of the frames, as in the Langstroth, King, Ham, and Otts hives, are objectionable, as a hive properly constructed does not require them, except when a hive of bees and combs are to be transported some distance, in which case a stick with notches to receive the bottom of the frames may be placed upon the bottom board, and removed again when the bees have arrived at their destination. At all other times it is very objectionable. It also is common property, and if of any use might be introduced into any hive.

After many years' careful experience, I find that ventilation through the bottom board, causing an upward current of air, is not as well as ventilation in the rear of the hive, giving ventilation from front to rear. It is common property, however, and any person has a right to put any kind of ventilation in a bottom board, and cover it with a slide door, or in any other way which may please his fancy.

Honey boxes, with comb frames in them, are very common, and in most cases not of the least use, as the bees will build crooked in them. Any person has a right to put frames in their honey boxes, and can try the experiment for himself.

As I have already stated, until something new in the habits of bees is discovered, nothing more is wanted in a bee-hive than is found in those which have stood the test of years. Bee-keepers would do well to look to their interests, and not invest in every novelty that appears on the market.

J. H. THOMAS.

Brooklin, Ontario.

M. M. Baldrige, of St. Charles, Ill., Secretary of the National Bee-hive Company, took 605 pounds of honey, net weight, from four stocks of bees in 1871, and had an increase of seven swarms.

Entomology.

Luminous Insects.

Nearly a year has gone by since we brought before the notice of the reader a class of unsavory, though very useful insects—the *Dang* beetles. We now pursue our usual course in our descriptions of beneficial or various other non-injurious insects that belong to the great order of beetles (Coleoptera), and shall endeavour to enable those who take an interest in this subject to distinguish between them and foe among the beetle tribe. In regular order, according to the generally received classification, we come to a number of families of decidedly noxious insects after the *Dang* Beetles, such as, for instance, the May beetles and other leaf-eaters (melolonthidae), the *Buprestis* borers that perforate the wood of a majority of our trees, and the Spring-back beetles (Elateridae), parents of the justly dreaded wire worms. The first common insects of a useful character that we come to after these are the fire flies, luminous insects of the family Lampyridae.

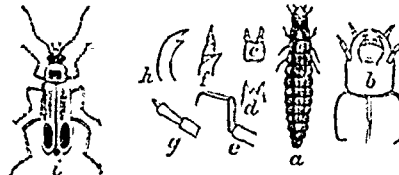
In tropical countries the fire flies belong to two very different families of beetles, the Elateridae and the Lampyridae—but in Canada luminous examples of the former are very rare indeed, though we have myriads of the latter. Our fire-flies, in the perfect state, are soft flattened beetles, with the head almost entirely concealed under the projecting hood formed by the thorax; they are generally of pale colours, though sometimes black. They are voracious in their habits; feeding in the larval state, upon earth-worms and soft-bodied insects. The light which they emit proceeds from the extremity of the abdomen, and appears, from its fitfulness, to be under the control of the insects. Its origin and composition have long been a matter of doubt. According to Siebold, "the luminous organs of these insects consist of a mass of spherical cells, filled with a fine granular substance, and surrounded by numerous trachean branches. This substance appears, by daylight, of a yellow, sulphur-like aspect. The light produced from these organs so remarkably rich in trachea, is undoubtedly, the result of a combustion maintained by the aid of the tracheae. This combustion, and the result of the same of the phosphorescence observed with the brilliant fire-flies, and which coincides, not with the movements of the heart, but with those of inspiration and expiration."

All our readers are, no doubt, perfectly familiar with the sparkling, intermittent light exhibited by fire flies on damp summer evenings. They appear to take especial delight in moisture, frequenting low marshy grounds and river bottoms in myriads, while they but occasionally visit the drier air of high ground. We have sometimes seen them in tens of thousands, nay millions, when driving at night along some

sequestered country road bordered by wet, swampy ground, or when taking a nocturnal amble in search of insects up the valley of the "Red." Brilliant and numerous though our Canadian fire-flies are, they cannot be compared judging from the accounts of naturalists—with the glories of the tropical species. There, besides species similar to ours, they have the huge *Lucifer*-flies, said to be two feet in length, and emitting a most brilliant light, and also the large spring-back beetle (*Phaleria* notabundans) that gives forth a bright glow from spots on the thorax. They thus describe the appearance of these creatures in tropical America:—

"So on did night display
More wonders than it veiled; innumerable
tribes
From the wood cover swarmed, and darkness
made
Their beauties visible: one while they
stream'd
A bright blue radiance upon flowers that
closed
Their gorgeous colours from the eye of day;
Now motionless and dark, eluded search,
Self-shrouded; and anon, starring the sky,
Rise like a shower of fire."

In England they have but one species of luminous insect, well known under the name of "glowworm." The females of this insect are long, flat, soft wormlike creatures, quite destitute of wings; emitting usually a pale steady light from the extremity of the abdomen. The males, on the other hand, possess complete wings and wing-covers, and are but feebly luminous. We have taken them in early summer in the long damp grass, beside hedge-rows in Lancashire, where their tiny light attracted us from some little distance. They did not, however, appear to be at all common.



In this country both sexes of the fire flies are fully winged, and both appear to be equally luminous. The larva also of several species possess the property of emitting light; but of these we have rarely obtained specimens. In 1865 we obtained a remarkable larva, which in all probability belonged to the genus "*Melanactes*" of the Elater family. Its general colour, (as we described at the time in the *Canadian Entomologist*, vol. 1, page 2) was a dark drab, the posterior angles of each segment, the suture connecting portion between the segments and the under side of the body being very much paler, and of a somewhat dirty yellow hue; on each side there is a deeply impressed line in which the spiracles are situated. When seen in the dark, the insect presented a very beautiful appearance, being apparently ringed and dotted with greenish fire. Each spiracle appeared to be a point of bright greenish light, and the division between each segment a line of the same colour; it looked, indeed, as if the whole insect were filled with fire, which shone out wherever it was not concealed by the dark shelly integument. When coiled up on its side it looked like a lovely Ammonite whose striae emitted green light, and with a point of green fire in each interspace."

All the insects of the Lampyridae family, whether luminous or not, may be classed among our friends, as they do not feed upon our crops or fruits, but upon various worms, snails and insects. One species (*Chaulognathus Pennsylvanicus*), a pretty yellow soft-

winged beetle, with a black oval spot towards the tip of each wing cover, is especially useful from its commendable habit of devouring the larvae of the dreaded Plum Curculio, when in the larval state itself. The perfect insect we have sometimes taken in great numbers upon thistle blossoms, towards the close of summer.

This insect and its larva are shown in the accompanying cut.

Poultry Yard.

Ontario Poultry Association.

The adjourned annual meeting of the Ontario Poultry Association was held at the Agricultural Hall, Queen-street. Mr. James Graham, president of the association for the last year, was voted into the chair.

The CHAIRMAN read the minutes of the last meeting, which was held on the 7th of December, 1871, when Mr. McLean, the secretary and treasurer, declined to present any report.

The CHAIRMAN then said that the members of the society had not been rightly treated by Mr. McLean, as it had been ordered by the meeting at which he was elected twelve months before that the funds then in the hands of Mr. McLean Howard, the former secretary and treasurer, should be placed in the Western Savings Bank. In the spring of last year, Mr. McLean denied that anyone had any control over the money save himself, and at the annual meeting he declined to await the action of the members, and walked off, saying he would have nothing to do with it. Mr. McLean Howard had received a letter from Mr. Thomas McLean, which he had placed in his hands. He read the letter, in which Mr. McLean, after apologizing for his absence on account of illness, proceeded to state that the society did not represent the poultry fanciers of Ontario, and that several had asked him to join in the formation of a new society. After an attack upon the President and Executive, he declined to cooperate with or assist in the continuance of the present association. He denied that he had refused to account for the funds in his hands, but contended that he was their proper custodian. The whole of the funds in his hands was \$105, which he had himself collected from the members, several of whom, understanding that the society was likely to become defunct, had obtained a pledge from him that in such an event he would return the money to the subscribers. Therefore, he felt bound to see that the funds were not employed for other purposes than they were intended for. The Chairman said it had not been his wish to be elected president, but the office was pressed upon him. It had not been desired to place the money in the hands of the president, but in the bank in the joint names of the president and secretary, both whose names would be required to cheques. Now, they did not know where the funds were.

The following officers were elected:—President, Mr. J. Graham; Vice-President, Mr. McLean Howard; Auditors, Messrs. J. Bewick and H. Miller; Secretary and Treasurer, Mr. Robt. A. Wood; Executive Committee, Hon. George Brown, Mr. Sheriff Jarvis, Messrs. H. M. Thomas, (Brooklyn), J. Forsyth, (Toronto), D. Allen, (Galt), R. C. Halbrook, (Hamilton), and W. B. Butler, (Toronto).

Raising Fowls for Market.

A young man rented a few acres of rough land near a large city in New York. It was divided into yards of about half an acre, and six varieties of fowls were kept. Commenced the first season with two hundred common hens, bought of the surrounding farmers; great care being taken to have no sign of sickness among them. A contract was made for the purchase of eggs for the best stock, and the next spring found him starting with three hundred hens, in nearly equal numbers, as follows: Hamburg, Poland, Black Spanish, Game and Dorkings, most of which were pullets raised from the eggs purchased, and not a sign of a sick chicken on the place, owing greatly, I imagine, to the soil being a light gravel, well drained and sloping to the south.

As he procured eggs from the best stock in the country, and purchased some of the best fowls to start with, he had a ready sale for eggs and fowls, but disposed of only a few that year; kept increasing the stock for three years, when, fancy poultry being at a very high price, sold out, having made enough to go into a large manufacturing business in the West, where the same qualities of patient industry and carefulness conduct the business successfully. At my request, he gave me the following items about the management, &c., of fowls, and their relative value under his treatment.

The first intention was to raise early chickens for New York market, and so constructed the chicken-house as warm as possible, in the following manner: A light rough board shed running the entire breadth of the lot (about two hundred feet); best boards selected for the sides and well battened, outside and in, on which, inside, was tacked thick tarred paper or felt; six large windows opened to the south, and the roof projected some three feet in same direction, pitching to the north; each lot of fowls had a room to roost in, and a large shed to stay in during the cold days, where they laid, &c.

For early chickens, the Grey Dorkings were found much the best; they lay and hatch early, and the chickens are the soonest ready for market. The Brahma was not so good; although appearing a larger fowl, was not quick in maturing, and did not make a good spring chicken. For eggs during spring and summer, the Poland and Hamburg were found best, and most of the eggs were sold at fancy prices; found no difficulty in raising the chickens, because he always took great care to have them sheltered from cold and wet, and was not troubled with roup or gapes; raised over fifty per cent. of those hatched; found it hard to get good hens to hatch; the best were games over two years old; the Dorkings are good but rather awkward, fifth too is in the way, and they tread on their chicks when confined.

In feeding, he found a mixture of the small grains the best, such as oats, wheat, barley, and considerable millet; average quantity required was six quarts to fifty grown fowls; they were fed three times in the day.

Correspondence.

My Farm.

To the Editor.

SIR,—The snow has pretty nearly left us. I am afraid, however, that this spell of fine weather is only a lull before the storm. It is a month too early for a Canadian spring, and I have little doubt that we shall be sleighing yet again for a short time.

In common with many of my neighbours, I am looking in vain for our fall wheat. We know the field in which our seed was sown, but the land hardly knows its crop. If we should have much severe weather, ere another fall of snow, I think that many of our wheat crops will be very short in the coming season. So bad does one of my fields look that I am casting about for some means by which, as soon as the spring fairly opens, to push forward the young crop. I believe there was a good root when the winter set in, but the land has been bared so often, that "top" has almost entirely disappeared.

I feel sure we must in some way force the young plant in spring, or it will be meagre and backward when the dry season sets in. I had thought of plaster of Paris, but fear that its action is too slow for the present requirements. Ah! if we only all of us had our tanks in the barnyard, liquid manure would be the thing. Or if I knew where to obtain a few waggon loads of soot; this I have often seen sown upon winter wheat in England, after the frost was out in February, and when the plant has looked sickly and backward. Its effects are very marked, not only giving the plant a richer and darker colour, but forcing its growth.

The most practical manure that I can think of is salt; and I shall try the experiment of top dressing with about a barrel or three bushels of Goderich salt, leaving one portion of the field without dressing. I hope I may be able to send you a favourable report at harvest time. If any of your readers have, with wheat in as backward a state as it will on many fields be this spring, been enabled to force the plant to a good crop, they would be doing a great service to the farming community by letting us know their experience through your columns before the frost finally leave us.

A neighbour called in the other day and asked me to go over and look at his early lambs. I went, and a finer and healthier looking lot it has never before been my fate to see. Between the 8th and 18th of February he had ten lambs from five ewes, all of which, with one exception, are living. The look of his lambs proves to me, what I always advocated, that February is the best month in which to have early lambs. The best success I ever myself had was in that month. In February, we always have many fine, warm days, and seldom have very much windy or wet weather. In March, we have much windy, penetrating cold weather, and often much rain. In April, ewes get tired of dry

feed and pine for the grass. If they get that early pasture, its effect is to scour and debilitate them, and I believe sours their milk. With good accommodation, February is in every way more propitious to the young lamb than either of the two succeeding months, and surely it is a great thing to have two months' growth upon our lambs before Easter.

My friend has had lambs from his flock in every month, and he is firmly convinced that the two most advantageous seasons at which to time the lambing are February for early lambs, and May for late ones; but on no account in either of the months of April or March.

OLD COUNTRY.

Ancaster, March, 1872.

Barley Meal.

To the Editor.

SIR,—Could you assign any reason why one of our principal cereals, well adapted for food, and largely used for such purpose in the mother country, is not in use with us? I refer to barley, which cannot be obtained in the form of meal or flour, but is almost exclusively employed in manufacturing intoxicating liquors. The flour or meal made from barley forms a most nourishing and agreeable kind of food, and I believe would be largely used were it in market, but it cannot be had.

A flour dealer in the city told me he wanted a quantity of it, but could not get it. I am convinced, were our oatmeal millers to add this to their business, it would prove very remunerative.

PROGRESS.

Toronto, 10th March, 1872.

Queries.

J. E. R., Rodgerville, sends the following queries:—

1. Which is the earliest soiling crop?
2. Which is the most durable kind of grass or a lane on which to pasture sheep?
3. Which are the best kind of grass seeds to sow in a bush for pasture?
4. What is the price of Lucerne seed; when should it be sown, and in what quantity per acre?
5. The price of the *Country Gentleman*?

ANSWERS.

1. Green Rye.
2. We should advise a mixture of White Dutch Clover, Meadow Fescue, Blue Grass, and Common Clover; and Red-top Grass with Alsike Clover, where the ground is low and inclined to be wet. All, or any combination of these grasses, adding other native grasses, will make an excellent permanent sheep pasture. The addition of Common Red Clover is made to give a good first year's stand; it will to a great extent die out in a few years.

3. This is rather too general. Is the bush well thinned, dry or wet land? If dry and well thinned, we should advise the thorough scarifying of the wood land by means of some narrow kind of cultivator. The indigenous grasses will spontaneously make excellent pasture, and the best adapted for the situation. To these may be added White Clover.

4. Lucerne or French Clover (*Medicago Sativa*) may be had from any of our leading seedsmen at about 40 cents per lb. Sown the same as clover, on spring grain, although it is considered by many English farmers that it should be sown alone as a special crop. From 14 to 18 lbs. broadcast is the usual quantity sown per acre.

5. Two dollars, United States currency

Canadian Thorn for Hedges.

To the Editor.

SIR,—In the CANADA FARMER, June 15th, 1868, there is a letter of mine relating to the planting and after treatment of a thorn hedge. I then said I believed the Canadian thorn would make as good a fence as the English thorn, and I have not yet changed my opinion. I also said that I had planted a hedge on each side of my garden. I now write to state my subsequent experience. I kept one of these hedges cut or trimmed down from the first; the other I let grow to seven or eight feet high, and I plashed it last spring, and every "rib" (as we used to call the pieces laid down) lived, and the stools have sent out a great number of young shoots, which have grown up through the ribs, and are likely to make as good a hedge as I ever saw in England. If anyone wants a good permanent hedge, let them do likewise.

T. N.

Sylvan, March.

Fences.

To the Editor.

SIR,—Having seen several useful articles on fencing in the CANADA FARMER, I will describe two kinds of rail fence that are used in this section.

The first is the ordinary snake fence, put up five rails high; then two upright stakes are placed at the corners on each side of the fence; a cap bored with large four-inch holes is slipped over the stakes across the fence, thus binding the whole firmly together; two more rails are put in, and the stakes are then driven into the ground. This makes a very strong fence. It is not liable to be blown down, and it is impossible for horses or cattle to get a rail out. It is, moreover, free from any large gaps for cattle to get their heads through.

The other kind is somewhat similar to the one described by your correspondent "Sawak" in the February number of the CANADA FARMER. It is as follows:—Bottom blocks of cedar, pine, oak, or any kind of timber that will not rot easily, are bored with two large four-inch holes, four or five inches apart. These blocks are placed on the ground, the length of the rails apart, allowing the rails to overlap six or eight inches. Stakes are then put through the holes in the blocks, and driven into the ground fifteen or eighteen inches; the fence is then laid up, four rails high; a cap, 20 inches long, bored with the same sized auger, is slipped over the stakes, thus binding the stakes and rails firmly together; two more rails are then

placed on the top, which makes the fence sufficiently high, being equal to eight rails in height.

The greatest difficulty in making those fences was to get the boring done, as a three-inch auger was too small, and a four-inch was too large to turn by hand; but a machine has been invented and patented for turning them by horse-power. The machine is said to bore about two thousand blocks per day. Any horse-power will run it, consequently it is not much trouble to put up a lot of straight fence, and enough good rails can always be got out of an old crooked fence to make a good straight fence. The machine is also adapted for boring posts for making post and rail fence.

W. M.

Dungannon, Co. Huron.

Enriching Land by Ploughing Under.

Thomas Nicholson wishes advice about ploughing in green crops this summer upon clayey loam, clean, dry, but poor.

We believe that one green crop brought to a luxuriant growth is better for our correspondent's purpose than a succession. Therefore, let him, upon his heavy land, sow buckwheat 1½ bushels per acre, and plough it down when in white flower, with a cham attached to his plough beam to turn under. Let him, in addition, by way of experiment, take a portion of his field and sow corn broadcast and thick, and plough down when about three feet high, following this crop by harrowing and sowing rape at the rate of four quarts per acre broadcast. We believe both courses to be well adapted to the purpose required, and should be glad to hear in future upon which has been observable the best result.

The Canada Farmer.

TORONTO, CANADA, APRIL 15, 1872.

Tree Planting.

The agriculturists of the United States have begun to realize the fact that if they desire to protect their farms they must turn their attention to tree planting. In the older-settled portions of the Union, as well as in most of the newer, the forests have been destroyed with an unsparring hand and with a recklessness next to criminal. The evil that has resulted is twofold. In the first place, the rainfall is very seriously lessened, and so the element which after all plays, perhaps, the chief part in agriculture, is restricted. In the next place, the cost of wood for many purposes is enhanced beyond the means of all but the wealthiest farmers. Not to speak of the uses to which the products of the forest are applied in the mechanical arts, it cannot be doubted that when wood becomes scarce

in communities purely agricultural, the cost of farming is increased, and so in proportion, to the consumer, is the cost of everything raised on the farm.

The people of the United States have lately given this matter both serious and practical consideration. They have seen the evil effects of rural districts denuded of trees. They have witnessed the drying up of the soil, the lengthening of the frost period, the greater force of winds and storms upon their orchards. And in a great many cases they have begun to work in earnest, so as to remedy the evils caused by their own wastefulness or the thoughtlessness of their forefathers. In several States the Legislatures have passed laws granting premiums for the planting of forest trees. The present indications are that the movement will become general.

Now the question for us in Canada to determine is this:—How do we stand in relation to the difficulties with which the American agriculturist finds himself face to face? If the truth were told we are not much better off than they. Our forests have been mercilessly hewn down, and although it may be pleaded that the demands of commerce justified this destruction, it cannot be denied that a great part of our timber is annually wasted through sheer carelessness. In fact, we have the authority of one of the foremost scientific men in the Province for saying that every year there is more timber wasted, either by being left to rot on the ground or by being burned, than there is cut down for commercial purposes. This state of things is discreditable in the highest degree, and at the same time is fraught with serious danger to the future prosperity of the country. It is true that we have still an immense quantity of timber lands untouched. But this is no excuse for wilful waste. Besides, for the most part, these timber lands are so far removed from any direct channel of communication with our markets as to render them comparatively valueless in the way of reducing the price of lumber in our great cities, or even to our farmers on the front. Their influence, moreover, on the rainfall would in the nature of things be scarcely perceptible, for it is apparent that forests a hundred and fifty miles distant could exert but a minimum effect on the climate along the shores of Lake Ontario.

In the older-settled districts of Lower Canada the absence of forest trees is most deleteriously felt. There was a time,—and not very long ago,—

when beautiful and productive orchards lined the south shore of the St. Lawrence half-way between Montreal and Quebec they have disappeared. Unprotected by belts of shade trees or of forest trees; they have been winter-killed, or absolutely burned up by the hot suns of summer. In the same tract of country there was at one time a system of excellent wheat culture. This, too, has failed; and there are not wanting those who affirm that it is the death of trees that has killed the wheat culture by drying up the moisture of the soil. But be this as it may, the fact remains that a portion of the Province which was once called the "Garden of Lower Canada," is now almost bare of orchards, and produces no wheat. It is also a fact that in this same portion of country that part of it which is the most denuded of trees is the least productive.

The Legislature of Quebec took up this subject a couple of sessions ago, and an effort was made to have a law enacted to foster and regulate the planting of forest trees. For some reason or other the subject was allowed to remain over. Here in Ontario an enactment for the same purpose might meet with more success. It is one which is demanded by the exigencies of our position. We grow here both wheat and fruits. In Lower Canada these have disappeared with the forest trees. The lesson is one over which to ponder, for it has an abiding interest not only for our agriculturists and the residents of our cities, but also for posterity.

Emigration to Canada.

I.

It would seem that, at last, something is to be done to bring Canada as a country for the working man, under the attention of the toiling millions of the old country. We have before us specimen posters of the largest kind, setting forth, that on certain evenings Mr. Thomas Conolly, "stonemason, (who has especially visited British North America to obtain information)" would, in certain specified Chapels and Halls in different parts of London, deliver lectures on "Canada as a home for workingmen."

The first of these lectures was given in Surrey Chapel, under the Presidency of Samuel Morley, Esq., M.P., on the 4th of March, and was very largely attended.

A large number of well-known members of Parliament and philanthropists were present, when Mr. Conolly spoke

for about two hours, on the physical historical and political characteristics of this country, and that in a stream of very high praise. The lecture was, it is said, "full of anecdote and humour," and seems to have awakened a large amount of interest among those who were present.

Mr. Conolly is a vigorous speaker, and one likely to be highly popular with the working classes. We have no doubt but that he will succeed in bringing Canada under the favourable notice of very many who have scarcely ever heard of it before, and we shall hope that the result of his labours will be an increasing emigration to this country during the coming months. Canada needs only to be known as she really is, to become always a more favourite field for emigrating to, by those who find themselves hampered in the mother country. It is not, therefore, necessary, and it is also far from being desirable to paint the attractions of our Dominion in too flattering colours. We are afraid that some of Mr. Conolly's representations on the occasion in question partook a little of this rosy tint. Wages are high among us, but one could scarcely call them "fabulous," and the expense of living is moderately cheap; but to say that "rents are scarcely known" is to give a very questionable view of the actual state of things in any city, town, or village of Ontario at the present day.

It is a pity that anything should be said by any of the friends of Canada, which has even the appearance of exaggeration. The substantial and undoubted advantages of this country are of such a character that they can answer for themselves when stated in the plainest and most matter-of-fact fashion; but when people are told that rents are merely nominal, and then come and find by actual experience that it is far otherwise, it is only natural that they should feel so disgusted, as not to appreciate, as they ought, the really great and substantial advantages they secure by making Canada their home. Better that they should find that the attractions have been rather under than overstated. We hope, therefore, that friend Conolly will bear this in mind, and in his fervid and justifiable zeal for our rising Dominion, not allow any representation to receive currency that would not stand the most rigid test.

Canada has proved a good land to tens of thousands of working men, and it has room for hundreds of thousands more. It will not afford any one a living without labour, but it will give, as it has given, to honest, earnest, persevering toil, a rich and permanent reward. There are multitudes who bless God for having brought them to this country, and very many of the struggling classes of England, if transferred to this side of the Atlantic, would have cause to do the same.

II.

Mr. Thomas Conolly is proceeding with his lectures on Canada, in London, and its neighbourhood. We have already referred to his first lecture in Surrey chapel; his second was given on the 19th ult. in the new Concert Hall. Mr. Ferriss, one of the members for Ebury presided. Mr. Conolly spoke very effectively and we have no doubt will be the means of inducing many respectable working men to come this country.

We have already hinted at the necessity of being cautiously correct in the statements that are made about the advantages of this country. Much as we desire to see immigrants coming among us, we would not wish any to have the idea that Canada is better than it really is. There is not a sober industrious man who will not find, in the long run, that it has been a good move for him to come to Canada; but he must reckon on some hardship, and difficulty, with plenty of hard work. To a great extent working men have made this country what it is; and other such will, we trust, in the future make it still better. But it has been by honest, earnest and unremitting toil that this has been accomplished; and it is still only by similar efforts that others will achieve like success. In the coming summer, labour will be in very great demand. We cannot say that wages have in the past, averaged from \$2 to \$2.75 per day, all the year round; but we can affirm with confidence that the position of the labouring man is much better and much more hopeful than in the old country especially if he is a married man. In certain positions the man, who is quite reconciled to the idea of being a servant all his days, may be quite as well off in Britain as in Canada, and in some instances, more so. But the special recommendation of this new world is that it gives even the poorest a fair chance of rising above the position of working for others. Every one can reasonably look forward to being his own landlord and his own employer, and that at no distant day. This makes a vast difference in the comparison. A good many may never achieve what they aim at; but all can feel that there is nothing either absurd or unlikely in the idea. They see that it has been done by tens of thousands and why not also by them? This of itself gives a new zest to life a stimulus to exertion. Wherever an immigrant goes in Canada he soon learns that it is twenty chances to one, but that the owners of the fine farms and comfortable residences he sees around, came to the country as poor as he is; and that one consideration does more than almost any thing else to strengthen his hands and encourage his heart in the often arduous struggle for honest independence, and an honourable and sufficient provision for old age. He may have to pass through hard experiences, and in moments of special difficulty

may even wish himself back to his position of pinchery and hopelessness in the old land; but this good hope, and the strong arm with the blessing of God will eventually make him thank Providence for the day on which he turned his face toward Canada. People frightened at hard work, with a strong tendency to lean up on others at every little difficulty had better not emigrate, unless they are prepared to drop such habits in the Atlantic. But where a man is able and willing to do a fair honest day's work, whether as a mechanic or as a farm labourer, he will find himself, in an indubitably better position in Ontario than he ever can expect to be in any portion of the United Kingdom. People sometimes talk of the work on farms in Canada being severe, and, during the season, protracted; but those who know what farm labour is in Britain will never for a moment contend that the advantage is in favour of the old land. We readily acknowledge that a man's limbs are pretty stiff by the time he has cleared a hundred acre farm; but would he not have been equally worn out in Britain with nothing to show for his labour but a bare piece of existence; and possibly a prospect of the Alms-house? When one thinks of the thousands and tens of thousands in the mother country who toil through the best of their days with not the slightest hope of ever improving their circumstances, and with nothing before them in old age but picking up occasional jobs, and then in due time coming on the rates, the wonder is, that with such a country as Canada within a fortnight's sail of them so few escape from hopelessness to hope. Of course, the main reason is, that they don't know, and their employers don't wish them to know. With a short-sightedness that is marvellous, farmers and landlords have been jealous of their labourers coming to know anything of the colonies. They would rather see them on the rates in the dead of winter, than that many of them should emigrate, and thus raise the value of labour.

The rural population has scarcely as yet been touched by the emigration agents; and yet it is from it that the best settlers for Canada must come. We welcome all who are willing to work; but agriculture is, and must long continue to be, the grand industry of this country. Therefore, while we are pleased that Mr. Conolly and others should present to the intelligent and struggling artisans of the old country a plain, unvarnished, and perfectly reliable account of our Dominion, (and that will answer always best, though it may not be so effective for a stump speech,) we hope they will also, at last, strike for the country places, and in plain, familiar talk make those who are struggling to support themselves and their families on two and a-half and three dollars a week, understand that they can do indefinitely better for themselves and their children in Canada, and that the land of promise can be reached in less than a month's travel.

We have grumblers in Canada no doubt; but as a general thing they are the idle, the improvident, the dissipated and the shiftless. These cry out that they have been deceived by the false and

exaggerated representations of agents and interested parties. In most instances, the grand fault has been in themselves; but the very fact, that there are those who are thus ready to lay the blame of their failure on the shoulders of others rather than on their own, ought to lead every representative of Canada to undertake rather than overstate its advantages, so that he can, in after days meet those who may have emigrated through his representation, face to face, and with all frankness and confidence challenge them to the proof of his having made one statement or held out one inducement which the facts did not amply justify.

Every year Canada is becoming better known in Britain. The high as well as the low there are beginning, and only as yet, beginning, to discover that this Dominion has in it all the elements for forming a great Empire, and that its waste lands can afford comfortable homes to the surplus population of Britain for generations. The more this is the case the better for us; and the better quite as much for our friends on the other side of the Atlantic. Canada has hitherto been systematically ignored, and when not ignored, systematically misrepresented. It is more than time that another course should be followed; and we are glad to notice the signs of such a time being at the door.

To Young Beginners.

Young beginners upon the farm are too apt to "go in with a rush." How often we see the young farmers bidding recklessly at auction sales for everything that he thinks may be of use to him; the money with which to stock burns in his pocket, or he longs to use his cheque-book. Too often he collects around him miscellaneous articles, all good in their way, but perhaps not actual necessities. Anything that can be done without in the start should be left out of his first inventory of stock.

It is thought that such and such should be bought now, because he may not have money to buy it when required. Such a principle is fatal. A certain amount of general stock is of course necessary. Do not buy one extra plough nor harrow, and wait until you are sure that you can work them to advantage ere you invest in the more expensive farm machinery.

Cash is more valuable for the first year upon a farm than it is at any subsequent period; and the beginner should, ere he open his cheque-book, or thrust his hand into his pockets, pause and consider whether what he is about to buy is an absolute necessity.

Try and get on for a year or so without expensive drills, separators, and especially without fancy buggies and fast trotting horses.

Take time, and know exactly what variety, shape, or patent of any particular implement of husbandry, will suit your special farm and circumstances ere you invest, and above all endeavour to buy everything as far as pos-

sible during the first year or so, from the proceeds of the farm, letting your furnishing inventory keep down to the lowest figure, and making the farm pay for as many implements and stock as possible. You pay a large original sum for the property (if rented, that rent represents a large principal); try and make such large investment be as much as possible re-invested in collateral or chattel securities upon itself.

It is a most important point, and one very frequently lost sight of in entering a farm, to hang on as long as possible to cash capital. If you run out of all funds, you cannot, be you ever so good a farmer, expect farms, in the state in which they generally fall into new hands, to return you over a scanty living for the first year. Endeavour to keep enough money on hand to be independent of the farm, for the first twelve months at least, for a living.

To return to first purchases, buy as little as possible second-hand. There is usually about as much profit in second-hand articles as there is in horse trading. Depend upon it, when you meet experienced old farmers at auction sales, they are not going to allow you to buy against them unless at a greater value than they know the articles put up are intrinsically worth.

You may apply the same principles to the purchase of live stock. It is wonderful how rapidly they will increase upon the farm. Buy a few at first, and pay more than they are considered worth, rather than buy poor beasts. Depend upon it, a good beast at more than its value is cheaper than a runt at half price—because, if you do pay too much for a superior animal, the money will be returned in its offspring.

Again, be very careful in beginning to improve. Much money is sunk in a sudden rush into permanent improvements. We know a man who bought a badly fenced farm, with poor buildings, and several wet spots upon it, for \$30 an acre. He went heavily into improvements, bought cedar rails, and fenced outside and in, built commodious barns, and underdrained his wet spots at once. His capital would not stand it; his fields inside his new fences were only half worked; his cattle he had soon to sell to meet pressing demands, until his commodious byres were only one quarter filled; his root cellar for 8,000 bushels received as many hundreds, and at last he had to sell for less than one-half the advance per acre that he had expended on permanent improvements.

Remember, if you don't make your farm pay you can't get purchasers to pay for improvements that they have not made under their own supervision and on their own plans.

Beware of getting a lot of hands, fencing, ditching, draining, and building, at first. Do no more than is absolutely necessary to keep your fences stock-proof and your barns fit to hold produce and cattle.

It is but a poor farm that will not gradu-

ally pay for its own improvement. Devote all your energies—they will assuredly be fully occupied—to getting your land into thorough and systematic order, and then, when your farm begins to put a balance of profit in your hands, it will be time enough to turn your attention and your surplus money to permanent improvements.

The Late J. S. Marks, Esq.

This much esteemed gentleman died in Kingston on the 7th day of March, at the advanced age of 95 years.

Mr. Marks was born in Plymouth in 1777, and entered the Royal Navy at an early age. His good conduct and perseverance soon procured for him advancement, and he served as Captain's Secretary under Lord Nelson, and was present at the battles of Copenhagen, the Nile, and Trafalgar. Mr. Marks came to Canada in 1813, in H. M. S. *Woodcock*, for service on the lakes, and in this he continued for 31 years. In civil life he occupied several distinguished positions, such as Warden of the Midland District, Inspector of the Penitentiary, Justice of the Peace, Colonel of the Frontenac Militia, and represented, for several years, the county of Frontenac in Parliament.

Having naturally a decided taste for rural pursuits, Mr. Marks commenced farming at Barriefield, in the immediate vicinity of Kingston, in the year 1836, and in this pursuit he continued until the infirmities of age made a less active life desirable or imperative. Mr. Marks was one of the earliest members of the Upper Canada Board of Agriculture, and filled the office of President of the Provincial Association with efficiency and general satisfaction. He imported from England, many years ago, a specimen of Read's renowned sub-soil plough, after the model of which several were made in Kingston, and found their way into various localities. Mr. Marks continued to feel a deep interest in agricultural matters after retiring from public life, and his long continued efforts for the public good are still held in grateful remembrance by many who had the pleasure of his personal acquaintance. In the well-chosen words of the *Daily News*:—"He spent almost the whole of an unusually long life in the service of his country and his Sovereign, and now descends to the grave having an untarnished reputation, troops of friends, and not a single enemy."

Monthly Fairs.

We are happy to see that many of our Canadian townships are organizing the establishment of regular periodical fairs for the sale of live stock and other farm produce. In England the Monthly Fair has become a recognized and established institution, the proper and orderly holding of which has been made the subject of Parliamentary legislation. In one particular section of this Pro-

vince the Fair has become deeply rooted, and will in all probability continue to increase with each succeeding year. We allude to that section in which are situated Guelph, Galt, Mount Forest, Durham, &c., &c.

Let those who, in older and more wealthy portions of the Province, are only now awakened to the advantages which must assuredly accrue by the establishment of these Fairs, turn their attention to the history of those already formed. In the county of Wellington it has been very hazardous to attempt a large growth of fall wheat. The farmers then in this section have been forced to turn their attention to the raising and fattening of beef cattle. When a large number of fat cattle had accumulated in those sections, it was found that in order to bring buyers to view these fat beasts, a home market must be created—hence the establishment of Monthly Fairs. It has been found that in too many parts of Canada, when a man had a few fat beasts for sale, he must go in quest of the butcher. When this buyer was found there was no competition, and in consequence the butcher who, by constant handling of fat stock, was enabled at a glance to estimate the exact weight of the animal, was upon most occasions in a position to over-reach the seller and to buy at a great profit.

Moreover, these local butchers are not a class of purchasers upon whom we can always depend. If the number of beasts fattened in a certain section exceed the demand in the local market, the wants of the local butcher are supplied, and we cannot with advantage dispose of the surplus. The market is small, and it has been glutted. But if we have a large supply of beeves in the township, and advertise their collection at a certain place upon a certain time, we call the butchers and buyers from a distance. We extend the range of our market a hundredfold, and we bring the buyers into competition. Upon the Fair ground the butcher has not to pit his practical knowledge of fat beasts against the farmer, but against his brethren of the steel, and by such competition is forced to content himself with fair and moderate rates of profit.

It has been urged in many of those sections where farmers have not yet got out of the old rut of wheat, wheat and wheat, that there are not enough beasts fattened to make a good Fair. We grant it; but we look for a reason for this fact. The reason is that there is no certain market; there is no guarantee that as soon as the animal is fat we can dispose of him. The establishment of Fairs will make that guarantee. We shall no longer depend upon a mere local want, but we shall open a market with Toronto and Montreal, with Chicago and New York. It is so at Guelph. Why not in other parts? Surely in the county of Wentworth, for instance—in the old township of Ancaster say—the land is equally well adapted to the growth of roots and to a heavy crop of

clover, as is that in the county of Wellington.

A buyer comes into these old counties, and he has to look up beasts; it will take him perhaps a week to collect together a car-load of animals to be shipped to a distance. If he can obtain that car-load in a day in any particular place, he will attend the sales at such a place; and, depend upon it, if he would take the trouble to search round for a beast at a time to fill up his shipment, he will never leave the Fair ground until he has bought his quantity in one day and at one place. And who is to pay for the extra expense that the buyer entails in thus "hunting round?" Why, most assuredly the farmer, in a reduced offer for his beast.

Is there one of our readers who has not experienced the vexation of having to travel about in search of a horse, of a span, of a milk cow?

In the fall of the year, the farmers in every county and in every section of a county are divided into two classes—those who have much stock to winter and little fodder, and those who have an abundance of keep and few head of stock; those who would buy stock and those who would sell. And how can we bring these two classes together but by their union upon the Fairground. Thither goes the man who would buy, and there he meets the man who has stock to dispose of. The one can there relieve himself of doubts about his power of wintering his stock, while the other can find his choice from which to replenish his too small herd.

We have ourselves experienced the difficulties spoken of this winter. We had abundance of fodder, and we had to travel all over to obtain stock that would consume our surplus with profit.

We congratulate the townships of Hamilton in Northumberland, and Ancaster in Wentworth, on their newly inaugurated action in the matter, and we heartily wish them and all townships which shall follow their footsteps that success which is rightly due to those who lead in the promotion of institutions most undoubtedly of great benefit not only to the farmers but to the public at large.

SILVER BEET SEED.—In answer to all applications received up to the end of February for silver beet seed, a small cotton bag containing half an ounce of seed—all that could be spared among so many applicants—has been forwarded through the Post Office to each. The following brief recapitulation of the directions for sowing may be useful to some experimenters: It is not advisable to sow too early; the latter end of May is quite soon enough. Sow in drills, the seed four inches apart, and rows twelve inches from each other. Sow two inches deep in fine pulverized soil. Soak the seed twenty-four hours in water before sowing it. Sow in a moist time. C.

Ornamental Shade Trees.

In driving through some of our townships one cannot fail to notice that the appearance of the country is rendered very desolate by the absence of isolated and ornamental trees. Not to enter here into the question of the ill effects upon the surface of the land of an utter denuding of all trees, we would simply point to the barren appearance that is the result of such wholesale mutilation.

It is urged that it is useless to leave forest trees standing by themselves when the bush is cut down. Doubtless, it is true that most varieties of forest trees will die or be uprooted by high winds, when deprived of the shelter of companions. Where such is the case, though the appearance of certain townships proves that it is not always a necessary sequence, we would have every inducement held out to our farmers to plant out saplings. If owners of dwellings or of farms have not sufficient taste to beautify their own property, let the public at least endeavour to induce such men, by the hopes of pecuniary compensation, to plant trees along the public roads. Let the counties or townships vote a bonus to the planter for every tree which shall be set along the highway, and which shall be living say three years after planting. If a tree survive its removal for three years, the chances are that it will grow to a large and handsome one.

If we live ten years from to-day, such trees as are now set out will do much to relieve the desolate appearance of too many of our landscapes; and to those who are living twenty years hence, and to our children, the appearance of the country will rival the arboreal beauty of old England. We may then, with our old country friends, eulogise "the shady lanes and leafy bowers."

Settlers on Indian Lands.

In consequence of the general discontent of the settlers in the Saugeen Indian Peninsula with regard to the price of their lands and their relations with the Indian Department, the Receiver of Amabel invited the Township Councils of Kippel, Sarawak and Albermarle to meet the Council of Amabel at Hepworth in the Township of Keppel, on Tuesday the 19th of March, to discuss the propriety of taking some united action in the matter. The several Councils responded to this invitation, and though the day was very stormy and the roads almost impassible, the attendance was large and influential.

Resolutions were passed agreeing to petition the Governor in Council to grant to the settlers of the Saugeen Indian Peninsula an unconditional remission of interest to date on lands sold which are actually occupied; to appoint a local agent in some central place to transact all business in connection with Indian Lands, that is at present transacted in Toronto; to petition the Governor in

Council to make a grant of money for the improvement of the roads in the several municipalities, as an equivalent for taxes lost on lands returned by the Indian Department; to cause to be re-valued such Indian lands as have been sold at an exorbitant price, or land of inferior quality on which the whole purchase money has not yet been paid; to appoint a Commissioner to confer with the Indian owners of the land, with a view of securing the purchase of the whole Indian Peninsula from them by the Government; and to bring into market all the unsold lands in the Saugeen Peninsula, and that said lands be sold to actual settlers only.

Moved by Wm. Flarity, seconded by F. Mills; that th^r. Reeves of Amabel, Keppel, Sarawak and Albermarle and Mr. Bull, Clerk of Amabel, be appointed a committee to prepare a petition and communicate with the Government, with power to call another meeting when deemed necessary. Carried.

Moved by Ludwick Spagg, seconded by Wm. Flarity, That the following persons be appointed a deputation to proceed to Ottawa to confer with the government relative to the resolutions passed at this meeting, viz: Messrs. Allen, Lee, Brown and Ball. Carried.

Moved by R. J. Doyle, seconded by James Allen, That the Secretary be requested to send copies of the resolutions of this meeting to the Toronto Globe. Carried.

British Agricultural Statistics for 1871.

The Agricultural returns for the year 1871 have been laid before the British House of Commons and published in the usual blue book fashion.

The returns are from 519,784 occupiers of lands, and of these 281,920 farm less than twenty acres each. The total amount of land farmed by these small holders was, for Great Britain, 1,897,984 acres, or 6 per cent. of the whole. The horses possessed by these were about one tenth of the whole; cattle, rather more than a tenth; sheep and lambs, rather more than a twentieth; and pigs about a fifth.

The total average returned as under all kinds of crops, bare fallow and grass, in the United Kingdom was 46,067,178 acres. This is an increase on the previous year of 499,808 acres.

In Great Britain 206,583 acres are returned as being orchard land, and 2,175,471 acres as under wood and forest of different descriptions.

As far as can be ascertained, there are seven millions of acres of waste land in England and Wales; but a very large proportion of that is quite unproductive and will never be brought under cultivation.

In Great Britain, 3,571,894 acres were under wheat, and in Ireland 246,354 acres;

while, as a whole, there were in the former 9,075,261 acres under grain crops, and in the latter 2,124,079.

Under green crops there were in Britain 3,733,180 acres, and in Ireland 1,511,532.

Of live stock the total number of horses in the United Kingdom was 2,618,000, of which Great Britain had 2,110,590, and Ireland 537,633. The total number of cattle was 9,346,216 of which 5,337,759 belonged to Great Britain, and 3,973,102 to Ireland. Out of a total number of 31,403,500 sheep, 27,119,569 were in Britain, and 4,228,721 in Ireland; while of 4,136,616 pigs Ireland had 1,616,754, and Great Britain 2,499,602.

For every hundred acres in Britain, there were 6.8 horses, while in Ireland there were only 3.4. On the other hand there were in England only 15.5 cattle to every 100 acres, while in Wales there were 22.9; in Scotland 23.7; and in Ireland 25.3.

Of sheep there were for the same quantity of land, 73.9 in England; 103.9 in Wales; 152.4 in Scotland; and only 26.9 in Ireland.

From the same returns it appears that the land under wheat in the Australian Colonies must be about 1,240,000 acres, which will yield 17,000,000 bushels, or nine bushels a head for the total population of Australia. The wheat crop of Australia is liable to great fluctuations. In 1870 the average yield in South Australia was about 5½ bushels per acre, while in 1871 it was 11½. The difference would have been still greater had not from two to four bushels in the latter year been shaken out by high winds in the time of harvest.

The land under cotton in Queensland for 1870 was 14,674 acres,—a very slight increase on the previous year. There were about 16,000 acres of vineyards in Australia, and as much at the Cape of Good Hope.

Notes on the Weather.

The past month of March has been the coldest of which any record has been taken in this part of Ontario, and the opening of Spring has been delayed to an almost unprecedented degree. The absence of snow and the extent of frost has led to a very general fear among farmers in regard to the condition of the fall wheat, many pronouncing that crop irretrievably doomed; but though considerable damage may be looked for, we do not think the injury will be so general as is anticipated—a very short time must now decide the question. The meteorological report from the Toronto Observatory for March, is as follows:—

The Mean temperature of the past month was 19°.9, showing a deficiency of 9°8 as compared with the average. No previous record of this month shows so low an average; for the nearest approximation we must go back 29 years, to 1843, when the temperature of March was 22°.4. The deficiency of temperature on some days was very large, as on 1st, 13.5, below the average; on the 2nd 11°, 4th 21°, 5th 29°, 6th 17°, 15th 14°, 19th 17°, 20th 25°, 21st 19°, below the respective averages, while only on one day the temperature exceeded the average, namely, on the 9th, when it was 1°.7 above the average. The lowest temperature was reached upon the 5th, when from 5 to 7 a. m., the temperature was 11° below zero. A second minimum occurred upon the 20th, upon which day the temperature fell to 4 below zero. The highest temperature occurred upon the 27th, when the thermometer rose to 46°.4. The warmest day was the 27th, with an average of 33.5; the coldest the 5th, 2.0.

Rain fell on 2 days, and amounted to 0.700, being considerably less than half the usual quantity. Snow fell on 11 days, and amounted to 16.3, being 1 inch above the usual fall.

The amount of cloud did not differ from the average of March, and may be divided as 6 clouded days and 25 partially so.

The prevailing winds have been S. W. and N. W., with gales from the E. on the 9th, 10th, 30th and 31st; that on the 30th and 31st being a return of severe wintery weather after the glimpse of spring on the 26th and 27th; it appears to have been generally felt over Canada and part of the United States, and was the most severe storm of the year. Snow and rain from 9 p. m. of the 30th, to 6 p. m. of the 31st, and amounted to 0.50 of an inch; the Barometric depression reached its lowest at 2 p. m. on the 31st, when it read 28.759.

The first robins seen on the 30th.

Farmers make good roads by ditching and grading. It pays two-fold. The adjoining lands are drained, and the roads made passable during the worst portions of the year.

SILVER BEET SEED.—The supply of this seed for gratuitous distribution is exhausted. Applicants who have not received any may conclude either that their letters did come to hand or were too late. C. Dawbarn & Co., of this city, would doubtless supply the seed.

Agriculture does not stand still, and it is well to learn as soon as possible the best ways and means, as time is short, and no man has time to try everything for himself.

SUNDAY ON THE FARM.—There is worldly wisdom as well as religious truth in the declaration of the N. Y. Tribune, "prosperity on a farm depends on a respect for the Sabbath. The oxen need it, the plough horses demand it, the bowed backs and sore arms of the great army of labourers that are over-worked cry out for it." The same paper also utters an earnest protest against Sunday labour required from the men and women in the cheese-factories, as being not only an infringement of the fourth commandment, but needless. It suggests that the two milkings used on that day be sent for butter, or kept over till Monday, or converted into pork, and says: "The pretence that the nature of the cheese business requires this profanation and sacrifice is a pharisaical sham; it is a mockery and an insult to common sense, not less than open disregard for the decalogue."

Horticulture.

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Canadian Floriculture.

It has been often remarked that a taste for flowers is a sure indication of refinement, that the wayfarer, seeking for a home for the night, turns with hopeful anticipations towards the woodbine-covered cottage, or the cabin where gentle fingers have trained the simple morning-glory or the scarlet-runner about the window. A home that is tastefully beautified with flowers is always an attractive object. The building may be the rude log cabin of the early settler, or the humble cottage that can boast neither beauty of design nor elegance of style; but if the surroundings wear an aspect of neatness, and flowers are tastefully planted and thoughtfully cared for, they throw an air of comfort and even of elegance around the home, that betoken in the inmates some degree of refinement and culture.

So the increase in the number of such homes in this Canada of ours will betoken an increase in the culture of its people, in the refinement of their manners, and in the means and capacity of enjoyment. And we are gratified in the belief that the love of flowers is increasing among us, and that their cultivation is extending steadily and rapidly.

Some two years ago we gave our readers some notes of a visit we then paid to the establishment of one of our leading florists, one of the oldest also in the Province. At that time we chronicled with pleasure the number of structures devoted to the cultivation of flowers and flowering plants, and took occasion to congratulate our readers on the evidence which the prosperity of the business gave of a growing taste for the cultivation of flowers among us. We took occasion very recently to pay another visit to the greenhouses of James Fleming, Florist and Seedsman, on Yonge Street, Toronto, and were very much pleased to find that what was then true of Canadian floriculture, was trebly so at the present time.

The greenhouses of two years ago are no longer adequate to the wants of the cultivator and the demands of his customers; but the growth of his business has been such that Mr Fleming has been compelled to erect three new glass structures, each seventy feet long by twelve feet wide, wherein to propagate and prepare for sale the thousands of plants which his patrons require. His buildings are now twelve in number, and so arranged that each plant may have the temperature and care it requires.

The first building is arranged as a show room, where plants in bloom may be seen

without the necessity of going through all the several houses. Connected with this building is an office and room for the making up of bouquets. Here may be seen the many designs of various patterns, as crosses, wreaths, anchors, crowns, harps, &c., &c., upon which the flowers are fastened in damp moss, so as to be kept quite fresh for a considerable length of time. Bouquets of all forms and patterns are here prepared, and sent, carefully packed, to any part of the city or country. This branch of the florist's business has greatly increased within the past few years, and the difficulty now seems to be to keep up a sufficient quantity of flowers to meet the demand. Such, however, is the admirable arrangement of these houses that a succession of bloom is kept up from November to May, so that the very large and increasing demand for bouquets and cut flowers may be fully met.

In the second house we noticed a considerable collection of new and rare plants. Here were the new roses, among them "Bella" and "Peerless," the pretty trailing variegated *Linaria*, so useful in hanging baskets and vases, the variegated *Stevia*, the new *Verbenas* of 1872, and young plants of that startling novelty which has created such a sensation in European circles, the *Amaranthus Salicifolius*. Besides these were many beautiful ferns and other lovely plant forms, which we have not space to mention.

The third house is devoted to plants in bloom, from which cut flowers are obtained for the fashioning of the various bouquets that find their way to the wedding parties, receptions, &c., in so many of our towns and cities. At the time of our visit it was sweet with the fragrance of the jasmine-scented *Rhynchospermum*, and gay with the various coloured *Bouvardias*, *Begonias*, and *Cinerarias*.

The fourth house was filled with *Primulas*, *Pelargoniums*, *Roses*, &c., from which, in their several seasons of blooming, are gathered many rare gems of beauty, to grace the brows or adorn the robes of Canada's fair daughters.

In the fifth house are grouped *Camellias*, *Azaleas*, *Gardenias* and *Oranges* in their most splendid varieties, ravishing the senses with the richness and delicacy of perfume, and exquisite beauty of form and colouring. The *Azaleas* are just coming into bloom, and a visit to this house during the latter part of March and the beginning of April will be amply rewarded.

The sixth house contains many plants of the *Salvia Stevia* and *Eupatorium*, which do such good service in the way of furnishing cut flowers.

The seventh house is given up to the Queen of Flowers. Here the various *Teas*, *Bourbons* and *Noisettes*, flourish in all their loveliness, and one lingers among the opening buds, sniffing the grateful odour of a *Marschal Niel*, or admiring the delicate blushes of *Souvenir d'un Ami*, until he finds himself almost unconsciously drawing comparisons between the lovely tints of the rose

petals and the delicate blushes that play on the cheek of a friend of whom he is reminded.

The eighth house is a largeinery, that at the time of our visit was wrapped in its winter's repose, but that in the months of September and October, hangs full of purple clusters, tempting to eye and palate.

The ninth house is to be filled with Verbenas alone, and is capable of containing from twelve to fifteen thousand plants, which are here grown in some hundred sorts.

In the tenth house are about four thousand bedding Geraniums, with a large number of beautiful Pansies, Forget-me-nots, Lady's Pockets, &c., &c.

In the eleventh house we saw a very fine stock of Pelargoniums, most finely grown plants, of which there could not be less than four thousand, and nearly as many Double-flowered Geraniums. In these, we noticed that the enterprising proprietor was cultivating the most choice and desirable sorts, enriching his collection at the same time with the latest desirable novelties.

The twelfth house was not yet filled, but it will soon be wanted for the many hundreds, nay thousands of plants, in course of propagation.

Such a continued and steady increase of business in this establishment marks a very decided progress in Canadian Floriculture, and when we reflect that this is but one of many establishments even in Toronto, and that there are others, more or less extensive, of the same character in every city and town in the Province, we obtain some idea of the rapid progress of our people in these arts which refine the taste and adorn life.

Rose Rendatler Geranium.

It is not generally known what a very useful plant this is for winter flowering; its bright pink flowers are brighter now and of a better shape than they are in summer, and they are also produced very abundantly. I have a house half full of it, that has been a mass of flowers for the last three months. The cuttings were struck late in spring, and grown in the open air in six and eight inch pots; not potted, but placed on bricks, and in September were removed to a light airy house, where the temperature is not allowed to fall below 40°. The plants are now many of them perfect little specimens, fit for a dinner table, with five or six fully developed trusses on each. I have given many other kinds a trial for winter flowering, but never found another half so good as Rose Rendatler. This I have grown and watched five or six winters, and it has never failed.—*The Field*.

APPLE RAISING IN TYRONE.—An esteemed correspondent and member of the Fruit Growers' Association of Ontario writes us that last year he sold six hundred dollars' worth of Apples. The most of them were sent by the purchasers to Scotland.

Rhubarb needs rich soil and plenty of manure about its roots; removed to a dark cellar in autumn, covered with good moist soil, it produces good stalks of nice flavour.

Effects of Pruning Grapevines.

The following extract is from an article in the last Ohio Horticultural Report, by G. W. Campbell:

"In my remarks upon pruning, I shall advocate no particular system, for I have never found any that I considered applicable to all varieties and all situations. My object will, therefore, be to state facts and general principles, leaving their application to be made as circumstances require. It is well known to all grape-growers that the wood-growth of the present season is the fruit-bearing wood of the next. The object, therefore, of spring pruning is to remove, as far as practicable, the old and useless wood of the past season, and to confine the new or bearing wood within its allotted space.

"That our vines have been, as a rule, confined to too narrow limits, and subjected to too much pruning, I have no doubt; and I am glad to see a general disposition among vineyardists to plant at wider distances and to prune less.

"A vine must eventually suffer from having all its tendencies continually checked, and its rambling habits cramped to a mere fraction of its natural dimensions. So far, however, as my observation extends, I would say that the injury resulting from the severest spring pruning, performed while the energies of the vine are dormant, is as nothing compared with that caused by an indiscriminate and wholesale summer slashing, while the vine is in vigorous growth and all its forces in action. In proof of this, I will mention the following experiment, which I have repeatedly tried with different varieties, and always with the same results. I have taken a young vine in perfect health, and in the full vigour of its early growth, and cut it down to within two or three leaves of the point where it had started in the spring. This sudden check stops all growth for a week or two, when the upper bud slowly swells, and at length makes a new shoot, and, if a vigorous variety, it will soon be making a rapid growth. I have then again shortened this new shoot a little above the former cut. The period of rest is now longer than before, but a new start, rather feeble, will usually be made; and I have repeated the cutting-back process even a third time. The vine now either remains stationary, or makes a very feeble and spindling shoot, which never matures. Now, if this vine be taken up after the fall of the leaves, it will be found to have just the amount of living roots it had when planted, and no more. All the new roots formed during each successive period of growth between the different prunings will be found dead and rotten; and the different sets of roots indicating these successive periods can be usually traced.

"The application of these facts to the practice of severe summer pruning is not difficult; and it is to my mind conclusive that its effect is only evil continually. A simple pinching at the ends of too rampant shoots, in order to strengthen the weaker ones and equalize the summer growth, in addition to the rubbing out of superfluous shoots, is all I believe to be ever necessary, if the fall pruning has been properly performed.—*Small Fruit Recorder*.

Fruit at Berlin.

To the Directors of the Fruit Growers' Association of Ontario.

The introduction of the Tetoxsky apple into this part of the country would be a great benefit to the community, as it would just meet the want felt, viz: an apple to fill the place of the Early Harvest, which is here rather a poor bearer and the fruit so scabby as to be almost useless.

I introduced the Duchess of Oldenburgh to this neighbourhood about ten years ago, and now it is generally disseminated. Those who have bearing trees of this variety, and it is a heavy bearer, usually get twice as much per bushel as for other apples, for although the fruit is not first rate in quality, it has a splendid appearance, a quality that is of some importance now-a-days. The ladies say it is splendid for cooking.

The Wagner apple was introduced here about fifteen years ago from Western New York, and was subsequently propagated and widely disseminated by Mr. James Dickie, a nursery man, near Galt. It appears to be a good cropper, and the fruit is of very good quality; but I am inclined to think the tree is not a very vigorous grower, its habit being much like that of the Keswick Oadlin or Hawthornden. It is not as hardy a tree as the Northern Spy.

I fruited the Brune Clairgeau for two or three years, but I must say that I did not find it to be in point of flavour any improvement upon a Swedish Turnip. Towards maturity its fine appearance bespeaks better things for it. The fruit however sells well for canning purposes, and the tree, with me, is as hardy as a sugar maple.

The McLaughlin plum is certainly a tit-bit in point of flavour, but here it is not very productive, and not very hardy. It may do very well in the collection of an Amateur, but the Washington and Imperial Gage are the plums to make money out of.

I find that all the purple and golden plums, such as Bingham and Cox's Golden Drop, are more tender than the green varieties, and should be planted in well drained ground and well protected from cold winds. In my collection of plums I find the Bradshaw and Pond's seedling the only two varieties yet introduced that are able to take care of themselves.

I have not tried to grow peaches, not because the trees will not grow but because they grow too well, I am, however, sanguine that in the course of a few years, when the rank fertility of the soil is sufficiently exhausted, peaches will live here as well as in some other parts of the Province.

When I settled here, some twenty-five years ago, the Heart and Bigarreau cherries would not grow, now large quantities are planted annually with success.

In the vine line I am about full, and have no room for the introduction of any more, for experimental purposes, until something turns up that will supersede the Delaware. As long as I can sell Delawares to the exclusion of the black varieties from the market I am satisfied.

SIMON ROY.

Hardy Shrubs.

Among the larger sized shrubs which grow freely and endure our Northern winters, we name the following:—

The *Barberry*, although not very showy, is a handsome shrub, growing in a neat symmetrical form, and always "taking care of itself." It has small, handsome, yellow flowers, which come out early in summer in handsome racemes, which produce bright crimson berries, that continue through late autumn and into winter. The barberry is propagated easily by seeds, and may be increased by suckers.

The *Philadelphus* (known by the common name of Mock Orange, and also by the improper name of Syringa), is a very hardy shrub, bearing white flowers early in summer. There are several species, but all succeed well. The least showy but most fragrant is the common *Philadelphus coronarius*. A more showy but less fragrant species is the *P. grandiflorus*.

The *Lilacs* are familiar to every one, and propagate themselves rapidly by suckers. The Siberian lilac is the finest specimen, having larger, richer, and more graceful branches of flowers, and a more airy form of the shrub. The Persian resembles the Siberian, but is much smaller and less showy.

The *Tatarian Honeysuckle* should not be omitted from any collection of shrubs. Its compact form, handsome, glossy leaves, and beautiful white and pink flowers, which appear in immense profusion, render it exceedingly desirable and attractive. The variety with striped flowers is particularly showy.

The *Snowball*, a widely known shrub, long since extensively introduced, has not been eclipsed by any one of the richest of later acquisitions. It has some tendency to run into a straggling form of growth, but this may be easily avoided, and a more symmetrical growth given to it, by shortening in all rambling shoots, and a fine effect is occasionally produced by trimming it for a few inches at the base to a single stem like a small spreading tree. It is readily propagated by layers.

The *Purple Elder* is a handsome and simple plant, and was once established in the soil, grows freely without care. It is not quite so hardy as some of the others, but endures most winters at the north without injury. To keep it in a good form, the straggling shoots must be occasionally shortened in or pruned away.

Among shrubs of smaller size than the preceding, and of hardy character and tree growth, we may name the *Spiræas*, of which there are several desirable species. The double plum-leaved, or Button spiræa, is one of the most beautiful. It needs a little care to keep the form compact and symmetrical.

The *Deutzia scabra* (rough Deutzia) bears a profusion of white flowers, and is one of the most desirable ornamental shrubs.

The *Weigelas* are among the most recently introduced shrubs, and have already found their way into extensive culture. The light red or pink blossoms cover the whole plant with a mass of bloom early in summer. *W. axillaris* continues longer in bloom than *W. rosea*, but is rather less showy. Both *W. rosea*, and are propagated by layers.

The *Ironwood*, sometimes a little tender for sharp winters, is too fine a shrub to be omitted from any collection. It needs a little care at first to give good form to its growth. The brilliant scarlet variety, and the white and pink, are both beautiful.

The *Sweet-Scented Shrub* is cultivated for its fragrance, and is very hardy and of tree growth.

The hardy *Roses* afford an opportunity for making an extensive selection, but are too numerous for us to make a list on this occasion. We may, however, name the purple *Boursalt* as especially hardy and free of growth, and a great bloomer.—*Country Gentleman*.

The Salem and Wilder Grapes.

Another season's experience with these two varieties of "Rogers' Hybrids" on my own grounds, has tended to confirm my former high estimate of their great value. Both for family and for market, by reason of their beauty, quality, and long keeping properties, they deserve to be much more extensively planted, wherever they will succeed as they do with me.

Just now the requirements are for varieties that are early, and yet that will keep into or through winter. Tons of grapes ought to be preserved for family use, where pounds now are. Not one family in a hundred have grapes for the table on Christmas Day, and yet, they may easily be kept as a daily luxury until March or April. But not all varieties. It is well known that many of the early sorts, as Hartford, Delaware, Concord, Adirondac, &c., though valuable in their season, are yet short-lived, retaining their best qualities but a few weeks at longest. The later varieties, such as Catawba, Isabella, Iona and Diana, can be successfully grown from year to year in only a few favoured localities. The people at large will not plant and cultivate varieties that fail to mature their crop one year in three.

And just here comes in some of these Rogers' Hybrids, which ripening early in September, yet if properly handled, keeping till April. But they are strong growers, and do best on a dry, warm soil, and must have plenty of room. One vine of Wilder, which I had grafted on an Isabella root three years ago, and trained on the side of a building, produced this year fifty pounds of fruit, which will be in good condition for home consumption during the holidays. Nearly one-fourth of an acre in vineyard produced at the rate of four tons per acre, and mostly sold at fifteen cents per pound, when Concord were sold at ten. The Salem is scarcely less productive of better quality, and keeps longer in good condition. Some other numbers of Rogers' are of great value, but these two seem to me to stand at the head of the list.—I. H. B., in *Fruit Recorder*.

The Heath and the Fern.

"There, how do you feel now?" said a purple Heath, growing on a sunny roadside among Furze and Bramble bushes, to a small Fern that had taken a root under the shade of a thick old elm tree. "A short time ago how you pined me, because my days had to be spent working and growing out in the summer heat; pity yourself now. See how the wet warm rain is falling, and never a drop can reach you."

"All the air is full of moisture," replied the Fern; "I felt it coming long before you did. I could not live half my time exposed to the dry fever heat in which you seem to revel."

"You are not going to live long," replied the Heath, "if there is any truth in your looks. How grey, and dusty, and parched you are. Your withered fronds go crack, crack, as the wind passes through them; you are as dry as the soil you vainly endeavour to thrust your roots into, and see how the rain comes down not unmindful of the smallest blade of withered grass; it would reach you if it could; gently, timidly it comes like a too-long-absent friend, and there is a rumbling noise afar off, and bright lights come and go in the sky, not caused by sun or moon, yet you are as thirsty as ever. Your great friend the Elm gathers it all to himself, not a drop escapes through his wide-spreading greedy arms. Poor Fern! you are dying of thirst—dying within sight and sound of running water."

"My turn will come," answered the Fern in a feeble voice, which sounded as though it came from a long distance; "when the good Elm is satisfied, my few wants will be supplied."

"It has been raining for hours," said the Heath, with a great laugh, "and it may cease before he is satisfied, and there be nothing left for you but a few dirty leaf-droppings. If you had taken my advice, you could have drunk your fill now; what a good time; you would have had."

"It would have been all over with me now, Mr. Heath, if I had ventured to live with you out there, exposed to the burning sun through all the long cloudless summer; the shade of this thick tree is welcome to me. I do not care for a blue sky; and a hard, dry, unmoistened atmosphere is a pain to me; it weakens my strength and injures my beauty."

"You do not know what is good," replied the Heath. "Oh how I love it." And in merry mood the gay Heath caught up the passing breeze, and shook out its thousand purple bells; and as though moved by the same impulse the giant elm lifted up and down his heavy arms, thickly clothed with summer leaves, and warm showers fell and moistened the dusty soil, and down his rough dark trunk little rivulets softly stole and tracked their way to the hollow where the Fern waited in patience.

"I am more than content," whispered the Fern; "I can grow green again, and ripen my rich brown spores;" and full of hope the Fern stretched out its faded fronds, uncurling each tender joint, and all the cool air was full of sweet perfume; the very soil sent up a thank-offering.—*Ex.*

Overstocking the Fruit Market.

PAPER READ BEFORE THE FRUIT GROWERS' ASSOCIATION, BY A. M. SMITH, ESQ., LOCKPORT.

"Is there any danger of overstocking the fruit market, or planting too many fruit trees?" is a question that is now being asked by many of our farmers and fruit growers. I recollect that twenty years ago, when a resident of Western New York, this same question was agitated there. Apples at that time were worth from 75 cents to \$1 per barrel pears from \$2 to \$3, and farmers thought they paid well at that: but some argued that if we all planted out fruit the market would be overstocked, and they would not be worth gathering. Others thought differently, and planted largely: and what has been the result? There is now ten times the amount of fruit grown there that was grown then, and the price has more than doubled, and the demand is constantly on the increase. The apple crop the past year in Niagara County, mostly grown in the northern part, in a territory no larger than the County of Lincoln, amounted, according to a report made at the Fruit Growers' Association of Western New York, to 300,000 barrels, at a net valuation of at least \$600,000, and the pears, peaches, and small fruits grown on the same territory would amount to at least \$150,000 more, making the income to the County for fruit alone at least three-quarters of a million of dollars, and the apple crop has been considered a light one. Sixteen years ago I consulted some of the leading farmers of Grimsby in reference to starting a nursery there, asking whether they thought it would pay or not, but received no encouragement whatever. Some said they might want a few trees to fill up vacancies in their orchards, but they did not think it would pay—there was as much fruit raised now as could be sold; and when I concluded to start on a small scale, and planted out 5 or 6 thousand trees, one old gentleman, a friend of mine, made the remark, "The boy must be crazy, he never will sell all of those trees in the world." Barreling and shipping apples was a thing almost unknown there then; but a few years later, when buyers came in and paid good prices for fruit, people began to plant out, and the past year there have been over 1,500 barrels of apples shipped from there, worth \$2,000, and peaches, pears, and other fruit, to amount to nearly as much more, to say nothing of the grapes made into wine, and from thirty to forty thousand cans of fruit put up at the Grimsby Canning Factory, and all of this grown within a territory of three miles square. Had it been that amount shipped out of the Niagara district sixteen years ago? But was an asked what guarantee we have that in the future the demand will keep pace with the supply. If we have not a guarantee, we have indications that it will in several ways. We have one in the increase of the home demand for fruit, even to a greater extent than the increase

of the population of our towns and cities. This is owing to the fact that people are becoming better acquainted with the nutritive and healthful properties of fruit, especially those who have emigrated here from parts where fruit is scarce and used more as a luxury than a common article of diet. We have others in the settling-up of places in our own country and in the neighbouring States where fruit will not grow to any extent; in the opening up of railroads and the increased facilities for transportation of fruits to different points; in the increase of the foreign demand; and in the improved quality of the fruit, particularly of our apples, which I think I may safely say can not be excelled, taking keeping qualities and everything into consideration, in the world. The apples of Western New York, particularly of Niagara and other counties bordering on Lake Ontario, have acquired the reputation of being the best keepers in the eastern markets, and generally command at least a dollar a more per barrel than apples, even of the same varieties, raised either south or west. But I see no reason why the fruit on this side of the river, subject to the same climatic influences, should not be equally good; and it has been even acknowledged by some very extensive dealers to be superior. Five years ago, Curtis & Co., of Boston, bought a good many apples in the vicinity of Grimsby, and at the same time were buying extensively in Western New York, and Mr. Curtis informed me that the finest fruit he got that season grew between the mountain and lake in that section. Last fall, I sold to a firm in New York 1,300 barrels of apples that I bought in the township of Stamford, near Niagara Falls. This firm also bought a good many at Lockport and other places in Western New York—and after they were inspected by one of the firm, I received the following compliment to Canadian apples:—"I am much pleased with the apples bought by you, and would not exchange them for any other 1,300 between Niagara River and New York City." I thought it was a pretty good one, seeing that there was at that time over half a million barrels between the two points. There may be a danger of overstocking the markets with some of our small fruits. I have known instances of it in some places on the other side, but I do not apprehend anything of the kind here, particularly in the neighbourhood of any of our large towns, or the Grimsby Canning Factory. And here I believe is another indication of the increased demand for fruits: in the various new ways of preserving them—canning, drying, and the retarding processes, which are practised in a great many places in the United States, and which will, I am confident, ere long be adopted on a large scale here. Of peaches and pears and the finer varieties of cherries, I think there is no danger of overstocking the market: for the colder portions of our country, where they will not grow, are able to consume all the surplus that can be grown in the favoured localities where they do succeed: but there is more to be said in the selection of varieties of fruit. It is a lamentable fact that one half of the apples grown in Canada are varieties that are worth very little, only for cider. Farmers have taken very little pains to inform themselves in regard to the varieties best adapted for marketing and to the climate, and there are thousands of orchards of natural fruit, which, if they had been grafted to the right kinds, would now be yielding thousands of dollars to their owners. But I am glad to see that they are beginning to wake up to the importance of this subject, and I believe the day is not far distant when Western Ontario will become what it should be—one of the best fruit-producing sections of the world.

Street Flower Girls.

The fashion of wearing button-hole bouquets came, like most other fashions, from France. A young and very pretty girl conceived the idea of standing with a basket of flowers on the steps of the Jockey Club, and presenting to each member a single flower as he passed. The plan proved eminently successful, and Mlle. Isabelle became quite the rage. From that time a flower in the button-hole became quite an institution, and finally developed the button-hole bouquet.

The poor little girls who accost the theatrical visitors with piteous entreaties to buy a bouquet, are the true successors of the famous Isabelle, but do not receive quite such handsome pay for their blossoms. For she often received a gold Napoleon for a single rosebud, while the little bouquets proffered by these children are sold for only ten cents. These perishing wares are arranged on a board pierced with holes for their reception, and invariably appear very bright and blooming. A closer inspection shows the critical purchaser that some of the flowers, such as fuchsias, verbenas, and heliotropes, have faded, but these are only the sides of the bouquet, the centre being almost invariably occupied by a large tuberoso or a blush rose. Next to this is generally a mass of scarlet geranium, and the whole has a backing of scented geranium leaves. The stalks are left pretty long, so as to enable the purchaser to pin the bouquet to the inside lapel of his coat.

The little girls buy them from the men and women who keep flower stalls. These individuals are, some of them, owners of nurseries and hot-houses, and in some instances, worth several thousand dollars. During the day time they sell what they can themselves, and then toward the afternoon they dispose of the remainder of their stock to the children, from whom they receive four, five, and six cents a bouquet, according to the amount of stock they have to get rid of. The flower-girls then arrange them on their perforated boards, give them a light sprinkling of water, and take their stations along the main thoroughfare between 5 and 6 o'clock, when gentlemen are very good customers for flowers. The remainder of the little girls' flowers they have no market for, until the theatres are open. Then they present their boards to all the gentlemen accompanied with ladies as a sort of mute appeal to their gallantry. Generally the fair ones, either from motives of coquetry or of pity, evince a wish for floral decorations, and the flower-girls are made happy. But on wet nights, and on wet afternoons, no one will stop to buy flowers, and the little vendors find themselves in straits of difficulty. They then try the large lager-beer saloons and the concert-gardens, but this they do with reluctance, for the men in those places are coarse and brutal, and seldom will give more than five cents. Those children who are

sent out by drunken parents to sell their bouquets, have then a terrible time. Though dying with fatigue and sleep, they dare not return until the last one has been sold under penalty of severe beating. Little things of even an eight years' age on such nights be seen taking naps under porticos and under kitchen stools, curled up in an uneasy ball, with the little board of bouquets lying by their side. They will often pass a wet and cruelly cold night in this manner, rather than face the brutalities of some drunken father or some virago of a mother. All the flower-girls, however, are not so miserably situated. Some are warmly clad and well cared for by their parents, who send them regularly to school in the afternoon. Some of these more fortunate ones work in the morning at artificial flower making or tobacco stuffing, or some other occupation open to children. None of these are so remunerative, however, as the flower-selling, by which the neat and tidy girls can average \$2 a day. Gentlemen like to buy of girls whose attire is decent and whose hair is trimly arranged, and if they purchase from a shoeless, stockingless, ragged flower-girl, it is from motives of charity alone. But the neat ones, especially those who are pretty, have regular customers, who buy of them every afternoon, rain or shine, and who give them little presents on holidays. In the winter time the outdoor flower business is almost entirely suspended, and the florists have no competition from the little flower-girls. Then the respectable ones go regularly to their trades, and the unkempt, ragged ones peddle matches and big mourning-pins, and sometimes tooth-picks. Up and down over the frozen snow and cold pavements they wander, with their poor little naked feet, their faces blue and pinched, their fingers cramped with the cold. Sometimes they get frozen to death, as happened last year to a little French flower-girl, and sometimes their failing limbs betray them when they attempt to cross the street, and they are driven over. In either case there is a hurried inquest and a careless verdict. The tortured body, now insensible to pain, goes to the Potter's burial ground, and the soul of the little flower-girl—whither?—*N. Y. Paper.*

Does the Garden Pay

I do not hold myself bound to answer the question—Does gardening pay? It is so difficult to define what is meant by paying. As I look at it, you may as well ask—Does a sunset pay? I know that a sunset is commonly looked on as a cheap entertainment, but it is really one of the most expensive. It is true that we can all have front seats, and we do not exactly need to dress for it as we do for the opera; but the conditions under which it is to be enjoyed are rather dear. Among them I should name a good suit of clothes, including some trifling ornament. I should also add a good dinner, well cooked and digestible; and the cost of a fair education, extended, perhaps, through generations in which sensibility and love of beauty grew. What I mean is, that if a man is hungry and naked, and half a savage, or with the love of beauty undeveloped in him, a sunset is thrown away on him; so that it appears that the conditions of the enjoyment of a sunset are as costly as anything in our civilization.

Of course there is no such thing as absolute value in this world. You can only estimate what a thing is worth to you. In a certain sense, it is a sort of profanation to consider if my garden pays, or to set a money value upon my delight in it. What! Shall I set a price upon the tender asparagus or the crisp lettuce, which made the sweet spring a reality? Shall I compute in figures what daily freshness and health and delight the garden yields, let alone the large crop of anticipation I gathered as soon as the first seeds got above ground? I appeal to any gardening man of sound mind if that which pays them best in gardening is not that which he cannot show in his trial balance. Yet I yield to public opinion when I proceed to make such a balance; and I do it with the utmost confidence in figures.

I select as a representative vegetable, in order to estimate the cost of gardening, the potato. In my statement I shall not include the interest on the value of the land. I throw in the land, because it would otherwise have stood idle; the thing generally raised on city land is taxes. I therefore make the following statement of the cost and income of my potato crop. I have tried to make it so as to satisfy the income-tax collector:—

Dr.	
Ploughing.....	\$ 0 50
Seed.....	1 50
Manure.....	8 00
Assistance in planting and digging, 3 days.....	6 5
Labour of self in planting, hoeing, digging, picking up—5 days at 17 cents.....	0 85
Total cost.....	\$17 60
Cr	
Two thousand five hundred mealy potatoes at 2 cents.....	\$50 00
Small potatoes given to neighbour's pig.....	0 50
Total return.....	\$50 50
Balance, profit in cellar.....	\$32 90

Some of these items need explanation. I have charged nothing for my own time, waiting for the potatoes to grow. My time in hoeing, fighting weeds, &c., is put in at five days; it may have been a little more. I had some difficulty in fixing the rate of my own wages. It was the first time that I had an opportunity of paying what I thought labour was worth, and I determined to make a good thing of it for once. I figured it right down to European prices—seventeen cents a day for unskilled labour. Of course I boarded myself.

I do not see any possible fault in the above figures. I ought to say that I deferred putting a value on the potatoes until I had footed up the debit column. This is always the safest way to do. I had twenty-five bushels. I roughly estimated that there are one hundred good ones to the bushel. Making my own market price, I asked two cents apiece for them. This I would have considered dirt cheap last June, when I was going down the rows with the hoe. If any one thinks that two cents each is high, let him try to raise them.—*My Summer in a Garden.*

The Raspberry.

Splendid berry the raspberry, when the strawberry has gone. My patch has grown into such a defiant attitude, that you could not get within several feet of it. Its stalks were enormous in size, and cast out long, prickly arms in all directions; but the bushes were pretty much all dead. The variety is one that I can recommend. I think it is called Brinkley's Orange. It is exceedingly prolific, and has enormous stalks. The fruit is also said to be good; but that does not matter so much, as the plant does not often bear in this region. The stalks seem to be biennial institutions, and as they get about their growth one year, and bear the next year, and then die, and the winters here nearly always kill them, unless you take them into the house (which is inconvenient if you have a family of small children), it is very difficult to induce the plant to flower and fruit. This is the greatest objection there is to this sort of raspberry. I think of keeping these for discipline, and setting out some others, more hardy sorts, for fruit.—*My Summer in a Garden.*

New Bi-color Geranium—Pride of Mount Hope.

The European varieties of gold and bronze-leaved geraniums do not endure our bright summer suns well enough to answer a good purpose for bedding out, but Ellwanger & Barry have raised a seedling from Mrs. Pollock, that well-known and most beautiful tri-color, which they believe will meet the wants of florists in this particular. It is a bi-color of vigorous habit, the leaf-ground golden yellow, very handsomely set off with a broad, well-defined, bronzy-red zone. Instead of fading out in our bright summer's sun, the yellow leaf disc becomes of a more deeply golden hue as the heat of the sun increases, thus enhancing the beauty of the foliage and heightening its effect. The foliage is said to be smooth, of good form and substance. We commend it to our readers for trial, in the belief that it will prove to be a very useful and ornamental bedding plant.

ON FERTILIZERS.—I suppose I am expected to say something about fertilizers; all agriculturists do. When you plant, you think you cannot fertilize too much; when you get the bills for the manure, you think you cannot fertilize too little. It is the great question of modern times—how to fertilize without ruinous expense; how, in short, not to starve the earth to death while we get our living out of it. Practically, the business is hardly to the taste of a person of a poetic turn of mind. The details of fertilizing are not agreeable. It is much pleasanter and easier to fertilize with a pen, as the agricultural writers do, than with a fork.—*My Summer in a Garden.*

Natural History.

Our Domestic Animals.

Great interest has always attached to the tracing of our domesticated animals back to their original sources; but all investigations of this sort have proved extremely difficult. Sometimes we have historical evidence of the domestication of some particular animal, or the same animal exists in both a wild and a domesticated condition. Even in this case, however, great difficulty often arises from the multiplicity of the domesticated breeds, or from the great differences which exist between these breeds as to form, colouring, and other characters. There thus often arises an additional question, as to whether all existing varieties of a given domestic animal are the descendants of one wild species, or whether each has arisen by the domestication of a separate wild species. Breeders and fanciers have generally adopted the latter view, but the preponderance of scientific opinion is in favour of the former. It would seem probable, however, that there are some cases in which the numerous domesticated breeds of some one animal,—such as the dog,—can be traced back to more than one original wild stock.

No animal exists in which there are more numerous or better marked varieties than the domestic dog. According to some authorities, all the varieties of the dog are descendants of the wolf or the jackal. According to others, every domestic breed has had its wild prototype. This last view is almost certainly false; but there are good grounds for believing that the various breeds of dogs have descended from three or four wild species. In the earliest historical times we have evidence of the existence of many of the existing breeds of dogs, or of forms very nearly allied to these. From Assyrian, Egyptian, and Roman monuments we know that greyhounds, mastiffs, house-dogs, terriers, and lapdogs existed at a very early period. In the latter portion of the Stone Age,—in pre-historic times,—we have ample evidence that the dog was domesticated in Western and Northern Europe. At the present day, also, the most barbarous tribes possess their breeds of dogs. All the existing breeds of dogs appear to be capable of inter-breeding, which would to a certain extent, support the view that they are all produced by the modification of a single primitive form. On the other hand, the native dogs of each country most closely approximate to

the wild canine species of the same country; and this would strongly support the view that a certain number of existing breeds are produced by the modification of different wild species. The domestic dog of the North American Indians thus closely resembles the ordinary North American wolf; the sledge-dogs of the Esquimaux similarly resemble the grey wolf of the Arctic regions; and the Hare Indian dog nearly approximates to Prairie Wolf. In the Old World, many of the varieties of Shepherd dogs very closely resemble the European wolf; the pariah dogs of India often are very like the Indian wolf; and the half-domestic, half-wild dogs of Asia and Egypt have the closest affinity to the ordinary Jackal. In Australia, lastly, the Dingo is both domesticated and wild; but it is only a doubtful native of this singular continent.

The source of the domestic cat still remains uncertain; but there are good grounds for belief that the various breeds of the cat are not descended from a single wild species. Cats have been domesticated from time immemorial, and they are found pictured in the monuments of Egypt or preserved as mummies in the catacombs. It seems quite certain that the ordinary domestic cat of Europe is not a descendant of the wild cat of the same region; but beyond this nothing can be definitely stated as to the source of the different varieties of cats. It is noticeable, however, that the cat can only be said to be partially domesticated, much less restraint being usually laid upon it than upon most other domestic animals, whilst almost complete freedom is usually accorded to it during the night time, when its nature leads it to be most active—since the cat is a distinctly nocturnal animal.

The original stock whence the various breeds of horses have been derived is also wholly unknown. In this case, however, there are the strongest reasons for believing that the numerous varieties of the horse are in reality descended from a single wild species, the home of which must have been somewhere in Asia. Few wild species of animals differ from one another, more than a race-horse, a dray-horse or a Shetland pony, and yet there is almost irresistible evidence that all the known varieties have been produced by the modification of a single primitive form. No "wild horses," in the proper sense of this term, are at present known to science; the first domestication of this noble animal is lost in the mists of antiquity. We know, at any

rate, that the horse was domesticated in Western Europe in the latter portions of the pre-historic Stone Age; for its remains have been discovered in the lake-dwellings of Switzerland. All the so-called "wild" horses of the present day—such as those which roam over the vast plains of South America—are known with certainty to be nothing more than descendants of the domesticated horse. We know, namely, that when America was originally discovered by the Spaniards, the horse was entirely unknown. When once introduced, however, it speedily reverted to a wild state and soon multiplied to an enormous extent, showing that the American continent, in its present condition, is singularly adapted to the horse. It becomes, therefore, a curious subject for speculation how the older breeds of horses which inhabited both North and South America, should have become extinct. It is known that numerous species of horses existed in America in comparatively late geological periods, and some of these were nearly allied to the existing horse, though none of them were quite the same, and some of them were extremely different. All of these, however, seem to have become extinct before the introduction of man into the American continent, and all existing American horses are unquestionably the descendants of those originally imported from Europe. Upon the whole, it has been concluded that the original wild species from which our domestic breeds of horses have descended, was of a dun colour, with a dark stripe down the back, and probably with leg-stripes and shoulder-stripes as well. Geology, though it throws no light upon the parent-form of our existing horses, has nevertheless done something towards elucidating the present remarkable structure of the foot in the horse. In all the existing horses each foot is terminated by a single toe only, all the other toes being absent or rudimentary. If we take the fore-foot of a horse, we find the single toe that is present to be really the middle-toe; that is to say, it corresponds with the "middle finger" in the hand of man. The toes which correspond with the thumb and little finger of the human hand are entirely absent; but the toes which correspond to the fore-finger and ring-finger are present in a completely rudimentary condition. They are concealed beneath the skin, and they merely constitute two little spines, which are called the "splint-bones." In some extinct horses, however, these two rudimentary toes carried little hoofs, and dangled loosely on each side of the middle toe,

not touching the ground, and being, therefore, quite useless so far as locomotion was concerned. In still older extinct forms the two lateral toes were sufficiently developed to touch the ground, and the foot in these ancient horses became thus truly three-toed.

Some day, doubtless, geologists will be able to point to some still older horse in which the other two missing toes were developed; so that the foot would thus come to exhibit its proper complement of five toes.

With regard to the origin of the numerous varieties of the domestic pig, it seems certain that these may be divided into two great groups, derived from different parent forms. In the one group we have all the modern, and especially the older European breeds of pigs, which appear to have undoubtedly descended from the existing Wild Boar. In the other group are the domesticated breeds of China, Cochin-China, and Siam, which have now been largely introduced into Europe, and have been freely crossed with the ordinary type. The parent-stock of these forms is unknown; but it must have differed considerably from the Wild Boar. Both these types of pig seem, curiously enough, to have co-existed in Western Europe in the later portion of the Stone period; since the remains of both have been found in the Lake-dwellings of Switzerland. The pig supplies one of the most admirable instances of the extent to which the organization of an animal may be affected and modified by its being placed under artificial conditions. If we compare some of our domestic pigs, especially those of the most highly civilized breeds, with the Wild Boar, or even with the gaunt old "Irish Greyhound pig," we find that the head is much shortened, the forehead has become concave, the teeth have become greatly altered in shape and position, and there are numerous other anatomical differences of a less conspicuous nature. The result of these modifications is that it would be quite impossible to recognize the identity which subsists between a prize-pig and a wild boar, if we had not overwhelming evidence to prove that the former is merely the civilized descendant of the latter. When allowed to run wild, the pig reverts more or less completely to its original condition. The males, under the circumstances, resume their tusks, the legs become longer, the body becomes more thickly clothed with hair, and the young are longitudinally banded with light-colored stripes, like the young of the wild boar.

Our domesticated breeds of cattle appear to have unquestionably descended from several wild species, though the parent-forms have mostly disappeared at the present day. The humped cattle of India and other parts of the East have almost certainly descended from a stock different to that which has given origin to the ordinary humpless oxen. They are known from Egyptian monuments to have been domesticated at an extremely early period, but their wild form is unknown. The chief European varieties of oxen appear to have descended from at least two distinct species. The larger varieties seem to have come down from the great "wild bull" or "Urus," which existed in a wild state in Gaul at the time of Cæsar's invasion. This noble species is not now known to exist except in a very degenerate form in the so-called "wild cattle" of Chillingham, a herd of which is kept by Lord Sackville. Another herd is particularly preserved by the Duke of Hamilton at Cadzow in Lanarkshire. These Chillingham cattle are white in colour, with a black muzzle, and with black-tipped horns, and though much smaller than the Urus, they are certainly the lineal descendants of the "mountain bull," the "mightiest of all the beasts of chase that roam in woody Caledon." The smaller European breeds of cattle appear to be descended from a now wholly extinct species, the so-called "British short-horn." The gigantic Lithuanian bison or "Aunche" has often been regarded as the progenitor of some of the European breeds of oxen, but there is no good evidence to support this view. This magnificent animal formerly inhabited Britain and the whole continent of Europe, but it is now unknown except in a single forest in Lithuania, though it abounds still in the great mountain range of the Caucasus.

The origin of the various varieties of the sheep is more uncertain than is the case with the varieties of oxen. According to Darwin "most authors look on our domestic sheep as descended from several distinct species; but how many still exist is doubtful. Mr. Blyth believes that there are in the whole world fourteen species, one of which—the Corsican 'mouflon'—he concludes to be the parent of the smaller short-tailed breeds, with crescent-shaped horns, such as the old Highland sheep. The larger long-tailed breeds, having horns with a double flexure, such as the Dorsets, Merinos, &c., he believes to be descended from an unknown and extinct species. M. Gervais makes six species of sheep; but concludes that our domestic sheep form a distinct genus, now completely extinct. A German naturalist believes that our

sheep descend from ten aboriginally distinct species, of which only one is still living in a wild state! Another ingenious observer, though not a naturalist, with a bold defiance of everything known as geographical distribution, infers that the sheep of Great Britain alone are the descendants of eleven endemic British forms." There is thus great difference of opinion as to the exact origin of the domestic sheep; and zoologists have not even agreed as to whether our varieties of sheep have descended from a single wild form or from several. It has, however, been very generally believed that some, at any rate, of the European sheep are descended from the wild sheep or "mouflon" of Corsica, Candia and Cyprus. It is quite certain that sheep have been domesticated from the very earliest periods in Europe, and it is known that the inhabitants of the Lake-dwellings of Switzerland possessed a domesticated race of sheep, differing in some respects from any known existing breed. Almost every district in Europe has its own breed of sheep, and most Eastern countries possess peculiar varieties. Of the English sheep, the Cheviot, Leicester, Southdown, Black-faced, Welsh Mountain and Wicklow Mountain sheep may be mentioned as amongst the most important. Of the numerous races of the Continent of Europe, the most valuable is the Merino sheep of Spain, distinguished by having wool on the forehead and cheeks, by its large, ponderous, laterally convoluted horns, and by its fine, long, soft wool, arranged in silky-looking spiral ringlets. Owing to the great amount of oily matter secreted by the skin of the Merino sheep, the animal acquires a dirty and dingy appearance; but no breed yields a more valuable wool. Of the Eastern races, none is more remarkable than the fat-tailed sheep, in which the tail is so long and is so loaded with fat, that it is often placed upon a little truck and is thus wheeled about by the living animal. Other varieties are remarkable for having four, or in some cases even eight horns. The only indigenous sheep of North America is the well-known Rocky Mountain sheep or "Big-horn." This undoubtedly constitutes a distinct species, which inhabits the Rocky Mountains from their northern termination in latitude 68° to lat. 40°, and probably still further north. They are unusually fine animals, and the males are distinguished by the enormous size of their horns. The Rocky Mountain sheep has not as yet been domesticated, but there does not appear to be any valid reason why this experiment should not be satisfactorily carried out.

The different races of sheep present well marked constitutional differences, and each race has become adapted to a special kind of pasture and climate. As has been remarked by Mr. Youatt, "in all the different districts of Great Britain, we find various breeds of sheep beautifully adapted to the locality which they occupy. No one knows their origin; they are indigenous to the soil, climate, pasturage, and the locality on which they graze;

they seem to have been formed for it and by it." Whilst this is undoubtedly true as a general rule, there are nevertheless cases in which the origin of some particular breed has been sudden and is known with the utmost exactitude. Thus, in 1791 a sheep was born in Massachusetts having short crooked legs and a long back like a turnspit dog. From this one lamb, the half-mountainous "otter" breed of sheep was derived. From their peculiar conformation these sheep are unable to leap over fences; and it was thought that they would prove considerable value for this reason alone. They were, however, soon supplanted and exterminated by the Merino sheep.

The domestic varieties of the Goat are now generally believed to be descended from a well-known wild species which is found in the mountain range of the Caucasus, and is known as the "Pazling." The number of varieties is extremely large, and some of these are very remarkable for the characters of their horns, wool, or general figure. One of the most important is the Cashmere Goat, distinguished, among other characters, by its long, straight, silky, white hair. The celebrated Cashmere shawls are made from the hair of this variety of goat; but they owe much of their beauty to the extreme care taken in their manufacture—a fine shawl, with a pattern woven in, taking about a year to work.

Coming to birds, the most important domesticated forms are Fowls. The origin of many of the innumerable varieties of the domestic Fowl is very obscure; but there is no doubt that the typical breed—the Game breed—is descended from the wild Jungle Cock or Bankiva Fowl of Java. There is also strong ground for believing that the other breeds—such as the Spanish, Polish, Hamburg, Dorking, Cochins, Bantam, and Silk Fowls—however different from one another in their characters, are really descended originally from this same wild species. The period at which the fowl was originally domesticated is lost in the mists of antiquity; but it appears beyond all question to have been first kept in the East; and the earliest Greek writers speak of it as a Persian bird, this probably indicating the line of its importation into Europe. The Greeks and Romans were both well acquainted with the fowl, and it played a prominent part at their public shows. It was sacred to several of their deities, as Æsculapius and Mars, notwithstanding which it was largely eaten. The most remarkable purpose for which the fowl has been kept is that of "cock fighting"—an amusement of very ancient date. This cruel sport is generally admitted to have originated with the Greeks, among whom it seems at first to have had a religious and political significance. It soon, however, degenerated, and its practice was accompanied with great cruelty and with reckless gambling. The cock has been amongst many peoples an object of superstition. The ghost in Hamlet "faded at the crowing of the cock"; and there has been a very widely spread belief that evil spirits were put to flight at the sound of cock-crow. This idea has

been finely expressed by Shakespeare in the following well known passage:—

The Goose has been domesticated from time immemorial, being mentioned by Homer. It has, however, varied little under this long course of domestication, and the different domestic breeds are not separated from one another by any very well marked characters. It seems to be pretty generally admitted that the domesticated varieties of the goose are all descended from the so-called "Gray Lag Goose," a common wild species which is found in many districts throughout Europe generally, in Northern Africa, and as far east as Persia. Before the invention of steel pens the goose was a more valuable bird than it is at the present, owing to the great demand for quills. Pennant gives the following quaint account of the rearing of geese in Lincolnshire in his time:—"These geese," he writes, "are kept in vast numbers in the fens of Lincolnshire; a single person has frequently a thousand old geese, each of which will rear seven, so that towards the end of the season he will become master of eight thousand. During the breeding season these birds are lodged in the same houses with the inhabitants, and even in their very bed-chambers; and in every apartment are three rows of coarse wicker pens placed one above the other; each bird has a separate lodge, divided from the others, which it keeps possession of during the time of sitting. A person called a dozzard, that is, goose-head, attends the flock and twice a day drives the whole to water; then brings them back to their habitations, helping those that live in the upper storeys to their nests, without ever displacing a single bird. The Geese are plucked five days in the year; the first plucking is at Lady-day, for feathers and quills, and the same is renewed four times more between that and Michaelmas for feathers only. The old geese submit quietly to the operation, but the young ones are very noisy and unruly. I once saw this performed, and observed that goslings of six weeks old were not spared, for their tails are plucked, as I was told, to habituate them early to what they are to come to. If the season proves cold numbers of the geese die by this barbarous custom. When the flocks are numerous, about ten pluckers are employed, each with a coarse apron up to his chin. Vast numbers of geese are driven annually to London to supply the markets, among them all the superannuated geese and ganders (called the "Cagmags"), which, by a long course of plucking, prove uncommonly tough and dry."

The various breeds of the domestic Duck, as in the case of the Goose, appear to have sprung from a single wild species, the common Wild Duck—which ranges from the Himalays to North America. The Duck, however, has been domesticated at a later period, than the Goose, being unknown to the Ancient Egyptians, to the Jews of the Old Testament and to the Greeks of the Homeric period. The domestic Peacock is unquestionably identical with a well-known Indian bird, from which the ordinary domesticated

variety does not differ in any important particular. It appears to have been known to the Greeks as a very early period, and not to have been introduced into Europe by Alexander the Great as has been commonly asserted. The domestic Turkey is undoubtedly the descendant of the wild American Turkey or of a well marked variety of this which inhabits Mexico. There can be little doubt but that it is to the Spaniards that we are indebted for the introduction of this turkey into Europe, and it does not seem to have reached Britain before 1550. As a wild species, the turkey is among the great dominant numbers, and is said to be ultimately exterminated but has been domesticated almost all over the civilized world and there is no fear of its disappearance as a domestic animal. The only other common domesticated bird is the Guinea Fowl, which is richly a descendant of a wild African species, from which it differs in form and respect, except in the colour of the plumage.

Household.

Farmers' Daughters.

In the Echo of the Globe.

SIR,—A little, a very little has been said about farmers' wives, and daughters and their dresses. But that little has been a decided affair, not doing justice. I do so because, sir, I am a farmer's daughter and proud to inform you that I love the free pure country air. Ah, perhaps, I may by-and-by be a farmer's wife, when I shall hope to enjoy all the privileges of the rose for house-keeping. One writer said:—"If a person calls in the morning at a farm house, he or she is shown into the parlour to wait until his patience is nearly exhausted. Then the wife or daughter appears dressed in tawdry clothes not at all becoming for the occasion." Another writer thinks that any young man would prefer to find the girls in neat and appropriate attire making biscuits rather than to know that they had gone and put on their best dress and company manners to receive him. Is it not time, sir, we took this subject in hand ourselves. As far as I can see the gentlemen have had it all their own way. I do not know if the writers belong to city or country, but one thing I know, they are picturing country girls wearing city airs. As for being shown into the parlour, who does it if not the farmer's wife or daughter? Not one family in five keeps a hired girl, although I am loathe to confess it. And every one who has ever lived in the country knows we do not live on style, or by ceremonies. If our friends come to make us a visit, (you know we don't have calls and cards), we receive them cordially at any time of day. If our work is in the kitchen, we just ask them in there, and laugh and chat until it is done. Neither is our dress such an item of importance after all. Not long ago a learned gentleman came early in the morning to our house. We were all busy with morning work, and not dressed as the city folks say. When he rapped, I opened the door, (we never had liveried servants), and received that learned gentleman in a home-spun dress—said home-spun having been spun and woven by myself. I hope no one will be

shocked about it. To be sure I like to be nicely dressed, and think it dutiful to be tidy and tasty if I cannot dress elegantly. But would you have us put on our best dress to do rough work in, and I believe a farmer's wife does more rough work than she ought to do. Think of a writer suggesting the idea that a young man would sooner find us tidy and making biscuits, than finely dressed. That is all stuff and nonsense. Show me the man that don't like to see a lady well dressed, and I will prove him to be a tinker or something worse.

We dress tidy, and can make biscuits and cakes too, and more than that, if our beaux stay long enough after tea, or come early in the evening, they see us shoulder our pails and show how butter's won.

The milking must always be done before we can take those moonlight walks in the dewy eve, that novelists write so often about, but which we found not so pleasant, for we in this way get our skirts dragged with dew and our feet quite damp. But the summer is not here yet. The spring work absorbs our attention at present.

I really would be pleased if some Canadian sister would take up her pen and define our proper position; surely, we would be benefited by a little discussion, so that our husbands may in our presence be able to find the pen for so worthy a purpose, and I hope you will be gallant enough to allow a correspondence to be opened. I do mean that we should be able to discuss anything of the kind, and with it in eight or ten pages dashed to a letter, that a paper ought not to look so surprised when he heard his wife's connection in the Government, or even those wonderful "little books." A few columns for ourselves would be very interesting and edifying in our evening circle. Will not some one come to our aid, and come speedily?

VINA BELL.

Household Hints.

Punch gives some "minor morals for married people," which are worthy to be preserved and studied:

"The last word" is the most dangerous of infernal machines. Husband and wife should no more strive to get it than they would struggle to get possession of a bombshell.

"Married people should study each other's weak points, as skaters look out for weak parts of the ice, in order to keep off them.

"The wife is the sun of the social system. Unless she attracts, there is nothing to keep heavy bodies—like husbands—from flying off into space.

"The wife who would properly discharge her duties must never have a soul 'above buttons.'"

NEW OAK MADE OLD.—An exchange says that the appearance of old oak may be obtained by exposing any article of new oak to the vapours of ammonia. Every variety of tint may be procured according to the duration and temperature of the volatile compounds. A new oak carved chair exposed to the vapours of ammonia will, in about twelve hours, have all the appearance of having been made two hundred years before.

Light in Darkness.

The Paris *Figaro* gives the following method of obtaining light instantaneously, without the use of matches and without the danger of setting things on fire:—

Take an oblong vial of the whitest and clearest glass, put in it a piece of phosphorus about the size of a pea, upon which pour some olive oil, heated to the boiling point, filling the vial about one-third full, and then seal the vial hermetically. To use it, remove the cork and allow the air to enter the vial, and then re-cork it. The whole empty space in the bottle will then become luminous, and the light obtained will be equal to that of a lamp. As soon as the light grows weak, its power can be increased by opening the vial and allowing a fresh supply of air to enter. In winter, it is sometimes necessary to heat the vial between the hands to increase the fluidity of the oil. Thus prepared, the vial may be used for six months. This contrivance is now used by the watchmen of Paris in all magazines where explosive or inflammable materials are stored.

Poetry.

Earth's Angels.

Why come not spirits from the realms of glory,
To visit earth as in the days of old—
The thunders of heaven with a din of olden story:
Is heaven more distant, or has earth grown so dry?

Oh have I gazed when sunset clouds reveal'd
Waved the rich banners of a host gone by,
To catch the gleam of some white plumed squadron
Along the confines of the glowing sky?

And oft when midnight chimes in distant cities,
Were calmly humming, I heard late and long,
But nature's pulchre beat in its own stillness,
Heart-strings of some of the seraph's song.

To Bible-stories did we their last anthem give,
When other states in force the due grew dim?
Was their last presence known in Peter's prison?
Or where exulting martyrs raised their hymn?

And are they a world within the veil departed?
Where gleams of wine along the emerald lawn,
And many a tear from human eye has etched
Since angel touch has cammed a mortal brow?

Yet earth has angels, though their forms are moulded
But of such clay as fashions all below:
Though harps are wanting and bright plumes folded,
We know them by the love lights on their brow.

I have seen angels by the sick one's pillow
Where the soft to e'en our soulless tread;
Where amitter hearts were drooping like the willow
They stood between the living and the dead.

And if my sight, by earthly dimness hindered,
Beheld no how'er a cherubin in air,
I doubted not for spirits know their kindred
They smiled on you the will gleam watchers there.

I have seen angels in a gloomy prison
In crowded halls, by the lone widow's hearth
And when any passed the fallen have uplifted
The glad pause'd the murderer's lips had birth.

Oh many a spirit walks the world unheeded,
That, when the veil of sadness is laid down,
Shed afar aloft with plumes undeposed,
And bear its glory like a starry crown.

Agricultural Intelligence.

Hamilton Township Farmers' Club.

BARLEY AND ITS CULTIVATION.

A meeting of the Township of Hamilton Farmers' Club was held at Cobourg on March 16th, Mr. Edward Bellerby in the chair.

Mr. Peter Sidey, President, in introducing the subject for discussion, said that he would follow the order suggested, and make a few remarks first on barley, and then on its cultivation. We find early mention of this cereal in Scripture history, and it was probably indigenous in Egypt. How it found its way to Britain he could not say, but it has long been cultivated there to a great extent, and for the last ten or twelve years the extent of ground over which barley has been sown in Canada, especially in the Province of Ontario, has so increased that it has become one of our staple crops, the six-rowed being the principal variety cultivated in this country. In regard to the different varieties of barley, Professor Low divided it into two sorts,—the two-rowed and six-rowed varieties. Lawson describes twenty varieties, while the Museum of the Highland Agricultural Society contains thirty or more varieties. The classification of barley by the ear is of three kinds,—the four-rowed, termed in Britain Bere or Bigg; the six-rowed, and the two-rowed. Of these, the Bere or Bigg was that which was mostly cultivated about a century ago, but more recently the two-rowed has almost entirely supplanted it, and is now the most commonly cultivated variety in Britain, the six-rowed being rather an object of curiosity than culture. In classifying barley by the grain there are only two kinds—Bere or Bigg, and barley. In the Bere the median line of the blossom is so traced as to give the grain a twisted form, one of its sides appearing larger than the other. In the barley the line passes straight, and divides the grain into two equal sides, whose shortness and plumpness give it a character of superiority. The bigg has long been recognized in Scotland, and a two-rowed variety, under the name of Scotch barley, was a long time cultivated; but several of the English sorts have been naturalized, and show a brighter and fairer colour, plumper and shorter grain, malt quicker, but are less hardy and prolific than the common barley. The great bulk of barley is used for malting purposes, but it is excellent food (when chopped) for fattening cattle and pigs, and also, especially when boiled, for horses. It is, besides, more economical considering the present prices of peas and oats. Its fattening properties are ten per cent. more than that of peas, taking equal weights, while the nutritive properties of the two grains are the same.

In speaking of the cultivation of barley, he would say that a loamy soil is the most suitable for its production. Although barley is not so hard on the soil as some other of the cereals, yet it requires a clean, rich soil, and land that has been made fit for a turnip or some other hood crop, will give a greater yield than that on which this crop follows any other cereal. It does not require a deep seed-bed, but the soil must be pulverized, or you need not expect a large return. In preparing the soil for barley (if soon after a hood crop), the ground should be ploughed once in the fall, so as to have the benefit of the winter's frost—ploughed in ridges the proper width. If sown on wheat or oat stubble, plough as soon after harvest as possible, and harrow often to kill the weeds; if the land is not rich enough, put on a good coat of manure just previous to ploughing again, before frost sets in. In spring, when the land is in a fit state for working, and just before sowing, the ground should be gone over with the cultivator, crossing the furrows, and a single time with the harrow afterwards, in order to give a loose and even seed-bed; if the soil be clay, the gang plough is better than the cultivator. As to the proper time of sowing, much will depend on the season; if spring opens early and continues fine, without frosts, it might be sown in the last week of April; but generally, would not sow until the 5th or 10th of May, or even later, as the young braid is very tender; when sown early it is very apt to get mipped with spring frosts, which would materially reduce the crop.

There is much difference of opinion as to the quantity of seed to be sown per acre. If sown early, less seed will be required than when sown late; two bushels per acre being sufficient at any time, but would rather sow $1\frac{1}{2}$ than 2 bushels. A judicious selection of seed is an essential point to secure a good crop. We cannot be too particular on this point. If we would clean grain intended for seed, as we do that for exhibition, we should not only have a better quality, but an increased yield.

If the seed-bed has been prepared in the manner recommended, a single time of the harrows each way will be all that is required to cover the seed before rolling. If grass seeds are to be sown, the ground should be rolled immediately after sowing; but if the soil be clay the seeds should be harrowed in with light harrows and the rolling left till the braid is well through the ground; had found after three or four years' experience that from 100 to 150 lbs. of salt sown to the acre will have the effect of stiffening the straw, and is of great benefit where barley is sown on rich clay soil.

Mr. A. McDonald said that he preferred the six-rowed variety; it was most suitable for us, chiefly on account of our market, this being the favourite with the American buyers. He found the two-rowed barley

yielded best, especially on a clay soil, but that the six-rowed ripened earlier, and was not so easily discoloured, if we had hot, showery weather during harvest. A dry loamy soil was best for barley, as it was easily hurt with wet. It did best either after a summer fallow or a root crop that had been well managed, with the ground well ridged up in the fall, in ridges of from 15 to 18 feet wide; then in the spring he cultivated across the ridges two or three days before sowing. If barley was sown too early, especially on clay soil, and where the ground was soddy, it was apt never to get through at all. One season he sowed his barley, and the next day there occurred a heavy rain, one-half of his barley never came up, the ground was baked so hard. The ground ought to be well prepared before sowing barley, made mellow on the top, not too deep, as barley drew its nourishment chiefly from near the surface. He had found a great advantage in top dressing his barley ground with short, well-rotted manure, drawn out and spread on the land during winter or early spring; then the cultivator mixed it sufficiently with the soil, he found it beneficial to apply plaster at the rate of 100 or 150 lbs. to the acre to barley after it came up; the benefit from plaster was most marked in a dry season. He thought salt would be an advantage to barley; he had not tried it, but intended to do so this year, say 3 or 4 cwt. of salt per acre; he also thought that to apply about 150 lbs. of superphosphate of lime to the acre, harrowing it and the barley in together would be a great advantage to the crop; had seen bone dust applied at the rate 6 bushels an acre to part of a field of barley; that part yielded ten bushels an acre more than the rest of the field, the land otherwise being the same.

Mr. Bourn said that barley did not answer on his light land; thought it did best either after a summer fallow or a root crop; would prefer it after a well wrought root crop, or on fertile soil; thought the land required to be made very fine for barley, more so than for wheat. Spring wheat would give a good crop on ground too rough for barley; he saw that barley did not do well on light sandy soil, it would dry up and come to nothing.

Mr. F. Aitchison said that of all the cultivated grain there is perhaps none which comes to perfection in such a variety of climates as barley. It is found in most parts of the habitable globe, and maintains itself in spite alike of tropical heat and drought, and the cold regions bordering on the frigid zone. Linnaeus found it growing in Lapland, in latitude 67°20'. In genial climates such as Egypt, Barbary, and the South of Spain, two crops of barley might be reaped the same year—one in spring from seed sown the previous autumn, and another in autumn from a spring sowing. This explained a passage in the Bible (Ex. ix, 31, 32), where the effect of the hail which desolated Egypt, in consequence of Pharaoh's refusal to let the children of Israel depart, is thus described:—"The flax and the barley were smitten; for the barley was in the ear and the flax was balled, but the wheat and the rye were not smitten, for they were not grown up." It is generally agreed among commentators that the event thus narrated took place in

the month of March; the first crop of barley was therefore nearly ripe, and the flax ready to pull; but the wheat and rye sown in spring were not sufficiently advanced in growth to be hurt by the hail. Barley grows best on a light, fertile soil, free from weeds which are more injurious to it than any other grain, it should therefore follow a hood crop if possible. Root crops require a well-pulverized soil, and so does barley. In Scotland it is always sown after turnips. This grain does well on heavy soils, provided they are worked and stirred until a proper tith is secured; but this of course increases labour just at the busiest season of the year. But it should always be borne in mind that it is poor policy to sow barley on land not properly pulverized. Barley grows and ripens with astonishing rapidity; nevertheless it should be got in as early as the state of the ground will admit and should be harvested before the grain is quite ripe, as it quickly injures if allowed to stand too long. When harvested early the grain is of superior quality, and less liable to shell out and be wasted. The grain of barley very much resembles wheat in its composition, it contains less gluten and more starch and sugar, as the result of which it is less nutritious than wheat though equally wholesome. Barley is quite as exhaustive a crop as wheat, if not indeed more so. It is therefore a mistake to suppose that the soil need not be in as good a condition for it as for wheat. Barley will do well on a shallower soil than wheat, because its roots very much along the surface and not to a great depth.

Mr. J. Pratt said that he would prefer the two-rowed rather than the six-rowed barley, if it were not for our market. The Americans were our chief buyers; they preferred the six-rowed, and we had to grow what best suited them. In the front of Hamilton Township he thought they could get 5 or 6 bushels an acre more of the two-rowed barley than they could of the six-rowed; but it was difficult to sell the two-rowed. With him, if barley was sown after his root crop it grew too strong, lay down and lodged badly, and was not a good sample. He always manured his root ground very high; had sometimes sown an acre or so of root ground, very thin, with the hope of having a good crop and a fine sample, but was disappointed. It always grew too strong. He generally sowed his root ground with spring wheat, and then ploughed his wheat stubble in the fall, and in the spring cultivated it and sowed it with barley. By this way he had good crops of barley and a good sample. When sowing two-rowed barley he used from $1\frac{1}{2}$ to 1½ bushels of seed to the acre; of the six-rowed he used about 2 bushels of seed to the acre. If he was going to manure land for barley he would apply it in the fall before he ploughed the ground, it would then get well mixed with soil, when giving the land the necessary ploughings, harrowings, and cultivations; he had never tried salt on his barley, but thought he would this year, as he heard that salt helped to stiffen the straw.

Mr. W. Young said that in his experience with barley he greatly preferred the two-rowed variety; it did far best with him; he had found no difficulty in selling it and getting the highest price going for barley. On one occasion on the same held—the land the same—he had sown both kinds of barley, and he got from 8 to 10 bushels an acre more from the two-rowed than from the six-rowed. The two rowed kind did best on a clay soil. With him, if sown after roots, barley was apt to lodge badly; he thought that about the 24th of April was the best time to sow barley. If he was going to manure land for barley, he would either apply it in the fall

before ploughing, or else he would put it on the top altogether; he ploughed his land for barley in the fall, and then cultivated it in the spring before sowing the seed.

Mr. E. Bellerby, in stating his experience in the cultivation of barley, said that his course of cultivation had been to plough the land well in the fall, and give it then a good coating of manure if he had it, and the land needed it; he then gave it a light ploughing in the spring, say about three inches deep, ploughing into broad lands across the fall ploughing; he afterwards cultivated it, especially if it had rained after the ploughing, thus making the land fine and level. No matter how fine the weather was, he never calculated to sow barley before the 5th of May, and when the weather was, not favourable he was sometimes as late as the 15th or 20th of May; he had not been troubled with spring frosts when sown thus; if barley gets any check it is very detrimental to the crop; it very seldom recovered a severe check.

Cobourg Fair.

The annual Spring Fair of the West Northumberland Agricultural Society, for the sale and exchange of farm stock, grain and seeds, was held at Cobourg on the 20th March. The day was one of the coldest of this very cold March, the thermometer being nearly 10° below zero at sunrise, with a strong wind blowing from the north-west; the roads, too, afforded neither good sleighing nor yet good waggoning, yet the turn-out of stock and grain was good, much better than was expected considering the day. There were some very fine fat cattle shown. The best was a pair of cattle shown by Mr. David Elliot, Haldimand; they gained the first and second prizes for fat oxen, and were, we believe, sold to Messrs. Robalt & Winch, butchers in Cobourg, and will no doubt set off their stall for the Easter market. The largest of the two weighed about 1,900 pounds, and they were sold for seven cents a pound live weight.

The first prize for a fat cow was awarded to a very fine one shown by Capt. Gifford, M.P.P.; the second to Mr. Bowman. There were some fine cattle shown by Mr. Ford, Mr. G. Carruthers, and others. These cattle found purchasers at about 4½ cents a pound live weight. There were several pens of fat sheep. The prizes were awarded to those shown by Mr. Winch for ewes, and Mr. Geo. Carruthers for wethers. These were sold to Mr. Powel, butcher, for \$12 apiece. There was a large show of grain, and a fair show of seeds. The principal exhibitors in these classes were Messrs. McEvers, Westington, Osland, Pratt, Roddick, Sidey, Aitchison, Bowman, Brown, H. Carruthers, Pettigrew, and others. No doubt there would have been a much larger turn-out of people had the day been seasonable. In addition to this fair, there will be a show of entire horses held at Cobourg on the 24th of April, when a stallion will be selected to travel the county, should a suitable one be shown, to which seventy-five dollars of a premium will be paid at the end of the season.

Markham Farmers' Club.

A Farmers' Club has very recently been organized in this rich agricultural township, with most encouraging prospects of success. On Thursday, 21st of March, Professor Buckland, by invitation, met the members of this Club at Unionville, where a good audience had assembled, and gave an appropriate address of a thoroughly practical character on the nature and objects of Farmers' Clubs, with remarks on some of the more prominent subjects suitable for the consideration of such gatherings.

After the address, several members related their experience of some of the matters treated of by the speaker, such as the protecting of winter wheat, the planting of forest and fruit trees, the economising and application of manures, and the necessity and advantages of draining, and a more thorough cultivation. The meeting was favourable to the spreading of a light covering of rough manure, or very partially decomposed straw, leaves, &c. on winter wheat, before severe frosts set in, and several members had found the practice very advantageous in protecting the young plants and preventing them being thrown out of the soil by alternate freezing and thawing. The protection of forest lands and the planting of trees for both shelter and ornament, were strongly recommended, and examples stated of the success and profitable returns of operations that had been conducted with proper care and judgment. It was strongly urged that, in order to obtain success in planting and draining, such works should be performed in the most perfect manner possible. A cordial vote of thanks having been given to the lecturer, the proceedings terminated, the afternoon having been spent in a very pleasant and instructive manner.

Washington Agricultural Convention

At the call of the United States Commissioner of Agriculture, an Agricultural Convention, consisting of delegates from Agricultural Colleges and State Agricultural and Horticultural Societies, met in Washington on the 15th of February, and continued in session three days. By all accounts the assembly does not appear to have accomplished much, owing, perhaps, to a want of preparation and organization. Some of our American exchanges pronounce the affair a failure, though they commend the good intention of the new Commissioner in thus summoning a council of the leading representatives of the agricultural interests of the country. The delegates appear to have taken matters into their own hands, rather to the disgust of the Commissioner. The *Prairie Farmer*, giving a favourable view of the meeting, thus sums up the result:—

“The question arises—What has the convention accomplished? It has given its voice for more lands for the colleges. It has asked an increase of appropriations generally to the Department of Agriculture, and for the specific purpose of keeping up the National Seed Store, and distribution of the publications of the Department. It has asked Congress to increase the Commissioner's pay to \$6,000 per annum, and of the Statistician, Entomologist, Microscopist, and Superintendent of Grounds, in the same proportion. It has resolved to perpetuate the convention by meet-

ing annually, the time of the next meeting being fixed for the 25th of February, 1873.”

The following resolution was passed among others, and we commend it as having an important bearing on our own Dominion as well as the adjacent country.

“Resolved, That we earnestly advise and entreat the farmers of our whole country, who are favourably located for the purpose, to plant forest trees, not merely for shade and ornament, but by the acre and hundreds of acres, in order to reproduce forests, to take the place of those that are being so rapidly and fearfully demolished in every direction, thereby not only providing for the actual necessities of those who are to come after us, but also to avert calamities that can neither be imagined or described, that must eventually ensue whenever our broad land shall be stripped of its forests, and consequently deprived of the numerous beneficent influences they are known to impart.”

Monthly Cattle Fairs.

- Guelph—First Wednesday in each month
- Harriston—Friday before Guelph Fair.
- Bosworth—Saturday before Guelph Fair
- Elora—The day before Guelph Fair.
- Drayton—The day before Elora Fair.
- Clifford—Thursday before Guelph Fair.
- Teviotdale—Friday before Guelph Fair.
- Listowel—First Friday after Guelph Fair.
- New Hamburg—First Tuesday in each month.
- Stratford—First Thursday in each month.
- Berlin—First Thursday in each month.
- Elmira—Second Monday in each month.
- Waterloo—Second Tuesday in each month.
- Mount Forest—Third Wednesday in each month.
- Durham—Tuesday preceding the above.
- Fergus—Thursday following Mt. Forest.
- Orangeville—Second Thursday in January, March, May, July, September, and November.
- Mono Mills—Third Wednesday in January, April, July and October.
- Erin—First Monday in January, April, July and October.
- Masonville—First Tuesday in February, May, August and November.

WIFE, MISTRESS AND LADY.—Henry Ward Beecher, in the *Christian Union* makes the following hit: Who marries for love takes a wife; who marries for fortune takes a mistress; who marries for position takes a lady. You are loved by your wife, regarded by your mistress, tolerated by your lady. You have a wife for yourself, a mistress for your house and friends, a lady for the world and society. Your wife will agree with you, your mistress will rule you, and your lady will manage you. Your wife will take care of you and your household, your mistress of your house, your lady of appearances. If you are sick your wife will nurse you, your lady will inquire after your health. You take a walk with your wife, a ride with your mistress, and go to a party with your lady. Your wife will share your grief, your mistress will share your money, and your lady your debts. If you die your wife will weep, your mistress will lament, and your lady wear mourning, which will you have?

CROPS IN IRELAND.—From all that can be learned from the agricultural districts of Ireland the prospects of a good harvest are far from cheering. The winter has been not only severe, but also most unhealthy—a wet, sickly, dreary season throughout the island, and farmers argue from this that the crops will be unproductive and the harvest small. In many of the cities and towns small-pox has prevailed to an alarming extent. Diphtheria particularly has suffered, and in Cork, Belfast, Drogheda and Waterford both small-pox and fever have helped to throw a gloom over the inhabitants of these cities. With these diseases, amounting almost to an epidemic, in the towns, and the poor harvest prospects in the country, the hardships of Ireland will be increased rather than abated this year. The continuous rains which prevailed from the beginning of November until the end of February have interfered greatly with the farmers, and the winter crops amount to nothing. Indeed, it seems as if the hills of Ireland increase with years. Between harvest and seed-time, failing crops and epidemics the condition of the Irish people in years becoming worse, and annually we find thousands of our shores the poor Irish contending for a miserable home which would cause them to long to them in their native land.

INFLUENZA OF THE HEART.—Those who suffer from the influenza which is now so prevalent, and which is such as drawing from patients the vitality, especially from the younger classes, of the life, may possibly learn resignation, if they cannot derive complete consolation from sympathy but significant researches which Dr. Pain has made, and of which he read the result in his first Linceian Lecture on Diseases of the Heart, at the College of Physicians. Enlargement of the Heart, one of the most distressing and fatal diseases is more than twice as frequent in males as in females, the precise proportion being 8 to 3. This remarkable liability to enlargement of men's hearts, as compared with those of women, is, he thinks, unquestionably due to the greater amount of work and anxiety which under the present dispensation falls upon men. Ladies may take this fact to heart, and reflect whether in claiming the rights of women, they may not at the same time incur the risks of men and with them a new and unexpected form of disability. They might do wisely to rest content for their sex, with hearts suffering, it may be, from those tender affections which often pain, but never kill.—*British Medical Journal.*

RECOLONISING VIRGINIA. An interesting experiment in colonisation is in progress. Mr. Lempriere, a gentleman of large experience in the States, late Colonial Secretary of the Bahama Islands, is about to start with a party of English families to settle in Western Virginia. The valleys of the James River are said to be most suitable for emigration. There are good soils, pastures, timber, coal and water privileges, and the Virginians are eager to welcome English settlers. It is thought that the Chesapeake and Ohio Railroad and the Kanawha Canal, both now approaching completion, will bring a great traffic right through the Virginian lands comprised in this scheme; for the present routes are usually blocked up for five months in the year by ice. Taking an average of twenty years, Maury says that the Virginian canal has only been closed by ice fifteen days in the year. This is explained by its latitude, lying as it does mainly between 37 deg. and 40 deg. north. It is neither suggestive of fierce wintery blasts nor torrid heats in summer. Compared with the changeable climate of England it is much more enjoyable—like Italy for salubrity, and similar to Devonshire in its wooded combs and knolls

of varied scenery, while game of every variety makes it a paradise of sportsmen. America has food and we have population to spare; and the best way to arrange "indirect claims" seems to bring the two thus together.—*London Telegraph.*

LONDON WATER.—The *Medical Times and Gazette* states that those companies remind one of the persons sentenced to be executed in the reign of Louis XI., who were marched to the gallows between the executioners, Petit Andie and Trois Echeelles—one jeering, one singing psalms. On the one side we have Dr. Frankland reporting to the Registrar-General that "the daily supply to London is now about 107 millions of gallons. Of this twenty millions is 'good wholesome water from wells and springs in the chalk, and eighty-seven millions is a more or less impure water derived from public fountains." The Chelsea and Lambeth Companies draw the supplies from the Thames, and have received the patent of the Metropolitan Waterworks Act, 1852, which gives them the right of taking water from the Thames at any point below the London Lock. The West Middlesex, and the Grand Junction Companies draw water from the Grand Junction Canal, and the Metropolitan Waterworks Company from the Grand Junction Canal. The Metropolitan Waterworks Company is the largest water supply in London, and its supply is the most impure in the city. In Mr. Bolton's report to the Government in 1850, Dr. A. S. Taylor, and Dr. Whitmore, our drinking water has much more lead in it than Dr. A. S. Taylor's analysis. Dr. Whitmore, for his use of the word "impurity."—"I object to the use of the word 'impurity' in Dr. Whitmore's analysis, because it has a tendency to mislead the public. He obviously employs this term to represent the solid or mineral constituents of the water—i.e., he applies it to substances such as carbonate of lime, common salt, etc., which are found in all natural waters, which are natural to the waters, and quite inseparable from them when they have once come in contact with the earth." "Lead and organic" and "previous sewage contamination" have no terrors in Dr. Taylor's eye—far, at least, as Dr. Frankland's evidence of the latter is concerned. Nevertheless, a little severity of judgment is not misplaced when applied to the quantities of so all-important a thing as our water-supply.

Mr. D. Johnstone, of Campbellford, sent to the Fruit Committee of the Fruit Growers' Association some samples of a Canadian seedling apple. He says of it, that his father planted some apple seeds and raised from them the tree that bore this fruit, and other trees. This tree has been in bearing for twenty nine years, and is a hardy and productive tree, bearing every year and yielding last year fifteen bushels of apples. The fruit is good for either kitchen or table use, and commands as high a price in market as any of the grafted sorts. The Committee made an award to Mr. Johnstone for bringing the fruit to the notice of the association.

THE PEERLESS POTATO—LARGE CROP.—From a sworn statement made to the Ohio State Board of Agriculture, it appears that the deponent harvested two hundred bushels of this variety from three-quarters of an acre

Begin in season to make your garden, and be reasonable about all your operations.

Plants do not eat manure, they drink the essence of it.

The fall wheat is reported by the *Guelph Mercury* as having a bad appearance owing to the frequent thawing and freezing.

The West York Agricultural Society will hold the Spring Fair at Weston on the 17th of April.

Weeds should be collected and removed from the garden; after being pulled or hoed up, they often root and grow. The best way is to burn them, root and branch.

Professor Johnson, of Yale College, says that from ninety-five to ninety-nine per cent. of the entire mass of agricultural plants is derived directly or indirectly from the atmosphere.

B. Nevils has organized a horticultural society having on its list of members not less than 50 names. A committee is appointed to draft the necessary by-laws for the regulation of the society.

Messrs. C. Rice & R. Tarville, of St. Catharines, shipped a car-load of clover seed, on Friday, direct to New Brunswick. Its net value at \$2,000, and it was the first shipped direct from the town to that province.

The fall wheat in the North Riding of West-Lothian suffered severely from the thaws during the mid-days and the heavy frosts during the nights of the past weeks. It is feared that very much of it is "winter killed."

The annual seed fair in connection with the North Riding of Grey Agricultural Society, was held at Owen Sound, on Friday, March 1st. The *Advertiser* says the grain and other seeds exhibited were of the finest quality, and the competitors pretty numerous.

In Australia the live stock has reached very large proportions: showing 797,800 horses, 4,713,000 cattle, 51,291,000 sheep, and 695,000 pigs. The wool exported from these colonies was worth £10,800,000 sterling in the English markets.

The average yield of wheat in different countries varies remarkably. In Austria it is 14 bushels per acre; in France and Prussia, 17; in Spain, 23; while in Britain the average yield is from 28 to 30. The yield of barley in France is 21 bushels per acre; in Prussia 25, and in England from 35 to 40 bushels per acre.

A seed grain fair was held at Woodstock on Wednesday last, when some 300 bushels were exhibited, much of which was either distributed by sale or exchange. The *Times* says that the samples were remarkably good and that the judges had not a little difficulty in deciding owing to that fact. Prizes were given for spring wheat, barley, field peas, crown peas, black oats, white oats, Poland oats, clover seed, timothy seed, and potatoes.

Miscellaneous.

Sleep Walking.

Many years since, whilst staying with a friend near Napauca, and working a farm on share, I was much troubled with "sleep walking." Whether or not this tendency to somnambulism was induced by very hard work, combined with some hereditary tendency, I am unable to determine; but I have always attributed an attack to some local or atmospheric influence, as I left off my nightly peregrinations after I removed from that section of Canada. My brother also, whilst there, was greatly troubled with the same annoyance. At that time I was, as before stated, working on shares, on Mr. Gardineer's farm, at Ernestown.

The date is most forcibly fixed in my memory, as it was the year following the rebellion of 1837, and that year was as firmly fixed in my mind, by my first and last act of soldiering and patriotism, so to speak, which I was called on to make, and which I have no doubt was the immediate cause of my aggravated attacks of sleep walking.

It was in the month of December, 1837, when the rebellion broke out, and we lived up Yonge street, and being strong Conservatives, considered it very advisable to communicate with the Toronto citizens and authorities the actual strength and arms of the rebels, who were at that time assembled at Montgomery's Tavern. As the avenues to the city had been closely watched, no communication that could be relied on had been made with the city for some days, and I and my brother had volunteered to go past the pickets and make the report.

We left our own house about twelve at night, and after wandering in the dense woods for some hours, and breaking our shins over logs and other impediments, we finally reached the river Don, somewhere just below Taylor's mills. The weather had been very wet, and the river was consequently much swollen, the bridges were all gone, having been destroyed by the rebels; nothing therefore remained but to ford the stream as best we could. The water was breast deep, and very cold. However, we reached the city, and our news decided the attack next day, which was altogether successful. In my patriotism I caught rheumatic fever, which laid me on the bed for nearly four months, and I have no doubt superinduced the subsequent attacks of somnambulism, that for years I could not rest in bed.

Many trivial incidents occurred after I recovered; but about the autumn following I had the most serious attack, that might have cost me my life or reason. I recollect I went to bed the night in question quite well, having been dancing all the evening, and eaten a light supper. Some time during the night I must have got up, and without

dressing wandered away into the fields for nearly a mile. The first intimation of being awako was caused by five large ferocious dogs (who probably had been out sheep stealing or hunting), barking furiously at me. It was quite dark at the moment of awaking, and I shall never forget the sense of utter inability to think or act; in fact, my presence of mind was for once in my life entirely gone, and no wonder, when I was awakened by such an almost infernal din. I staggered for a few moments, oppressed with a dreadful sensation of hollowness about the region of the heart. I was conscious of having something in my hand, but quite unable to use it or throw it down. In my staggering and jumping here and there, to avoid the attack of any particular dog, I fortunately fell over a miserable little one-handed plough, that the owner had left stuck in the earth when he had unhitched his team the day previous. I perfectly recollect the instant reaction produced by the blow on the shin-bone, and consequent acute pain. In one moment the faintness left me, and the "old Adam" was up for a fight. The pain of the blow had entirely banished fear, and I was, as our neighbours would call it, thoroughly "riled." Although undressed, and without hat, shoes or stockings, I sprang at the dogs, whirling round my head the something I had in my hand, which subsequently proved to be an old family bible, (I had always accustomed myself to read before lying down in bed), tied up in the seat of a pair of trousers, for what purpose I am quite unable to say, as it was so done up whilst I was asleep. With this weapon I soon made the dogs fall back, and the moon at that moment breaking through the heavy, thick clouds, shone quite brightly, and enabled me readily to see a much more useful kind of defence in a heap of stones, each about as large as a goose egg. The fight, however, was far from being over; the dogs had got their blood up also, and were a very fierce valuable breed from Cuba, as large as mastiffs, and but little inclined to allow of my escape. The heap of stones, however, thrown by an active young man of twenty-five years old, soon placed several of them *hors de combat*, and enabled me to beat a victorious retreat.

Next morning, however, a great commotion was raised at my neighbour's, who had to kill two of the dogs which were very much injured, and another had his eye knocked out by a furious blow with a stone, whilst a fourth had a broken lot of ribs. You may be sure I kept by own counsel, and never said a word of how they were so injured, and the owner never knew to this day. I was really sorry for the dogs, who were only doing their duty, and were very valuable and really beautiful animals, and of very choice breed, excellent for farm guards, and at the same time good cattle and hunting dogs.

The next morning showed a much dilapidated family bible, and a pair of legs that had more thistles in them than I ever saw or wish to feel again. It was a week before all the prickles were extracted. There is no doubt that when I fell over the plough I was

on the point of fainting, and the pain of the blow restored me just in time to avoid doing so. Had I fainted, the dogs would have no doubt torn me dreadfully, and the condition under which all this occurred might have cost me my reason. I never saw such a savage crew as they were; and a solitary unarmed man in the middle of the night, a mile from home, offered a tempting victim for their attack, but it failed nevertheless.

Many years since, I perfectly recollect awakening on the ridge of a four-story house, in Portsmouth, England. It was bitterly cold, and I was in a most exposed position; but there I sat outside the ridge, within two feet of the upright gable end, sheer down which would have been about forty feet to a paved yard. Fortunately, I had acquired one invariable habit in these cases, namely, to remain perfectly still on retaining partial consciousness, until I had recovered my knowledge of where I was, and this often took some time, as, although I might be quite familiar with objects thereabouts in daylight, yet in the night it was very confusing. In this latter instance I had opened a garret window, and walked along the parapet, and by the aid of my naked feet ascended the sloping tiled roof, and got astride the ridge tree. I always escaped, however, without any injury, and I subsequently had many an opportunity.

OLD SETTLER.

English Farm Labourers.

The farm servants in Warwickshire have struck for higher wages. They have also formed among themselves a Union for the purpose of assisting the surplus labourers to emigrate to other countries, or to remove to other parts of Britain where labour may be more in demand. A mass meeting of those interested was held at Leamington, on the 29th ult., presided over by the Hon. Auberon Herbert, M. P. There was read a letter of sympathy and approval, signed by the following members of Parliament:—Lord Fitzmaurice, Messrs. Mundella, George Dixon, Thomas Hughes, Andrew Johnson and Mr. A. W. Brown.

The condition of the farm labourer in England has long been a very disgraceful one. The wages in Warwickshire are higher than in many other counties, and yet they are only £3 a week, without board. All that is asked is an increase to £4 and £4 50, and ten hours of daily labour, with overtime paid at a higher rate. In some other counties the average wages will not exceed \$2.25 a week. The idea of a man paying rent for his cottage and supporting a family on two dollars and a quarter per week, is simply horrible. No wonder that a newspaper reporter who tried to live among them and on their fare said he felt himself weaker, and as "empty as a drum." In view of such facts, who will say that it would not be for the advantage of all parties that large numbers of these badly-used persons should transfer themselves to Canada? But how are they to get across? To propose that they should raise £6 for their passage would be as absurd as to suggest that they pay the national debt.

Pigs and Venomous Serpents.

We give below an extract from the "Oriental Sporting Magazine," in which the writer states that he was on two occasions a witness to pigs being severely bitten by cobras without being in the slightest degree affected.

The first time I witnessed the act was in Ceylon in 1856. I was returning one morning from snipe shooting with a tolerably fair bag of birds, when my attention was arrested by a dozen semi-wild pigs belonging to my friend, most perseveringly engaged in endeavouring to turn over with their snouts the half-rotten stem of a palmyra palm, and curiosity to see if they would succeed in their endeavours—for I had never seen pigs work so unanimously in concert before—caused me to stop and watch them. After two or three failures they gained their point, turning the tree half way round, when a whole family of cobras, large and small, glided from under it. After them the pigs scampered helter skelter, showing as much activity, although only half wild, as a Bengal bear would do. A very large cobra, fully five feet in length, was seized by a half-grown sow within twelve feet of me, and whilst she was crunching up the horrible writhing "bonne-bouche," which had been seized about the middle of the body; I distinctly saw the reptile bite the sow twice on the snout, without the animal apparently caring the least about it; the pleasure of consuming the luscious tit-bit entirely compensated for any annoyance of pain that the pig might have felt at the time. I saw the sow mentioned some days afterward, not the least affected by the bite of the cobra.

The second instance was on a small island, called Pulobbin, situated on the narrow channel of the sea between Singapore and the mainland. I had gone over to Pulobbin to endeavour to shoot a man-eating tiger which was creating great havoc among a few wretched Chinese convicts stationed on the island to split granite and ship it to Singapore for building purposes. In this instance, I had been out all the morning in an unsuccessful search for the man-eater, and on my return feeling rather done up, I stretched myself at full length in the raised portico of the shooting-hut, and was enjoying my pipe, when I noticed a large black cobra slowly gliding along the top of the bank, within twenty feet of me.

In the side of the bank were several holes, having much the appearance of the nests of our English sand-martin, and they had evidently at some previous time been the nests of either king-fishers or some of the fly-catcher family. The cobra, having approached the very brink of the cutting, suspended his head and about two feet of his body over it, and commenced a diligent search in these holes for rats, birds, or any small prey which might be concealed within them. Suddenly a loud squeak from one of their occupants showed that the unwelcome intruder had been successful in his search; and on the snake withdrawing its head from the abandoned bird's nest, a large frog leaped vigorously out, but on reaching the ground seemed to be perfectly paralysed with the venom of the bite, and in less than a minute died.

The snake seemed to be fully aware of the deadly effects of its own bite, as it never attempted to follow its victim, though it closely watched it from the bank, its head being thrust about two inches over the bank, its eyes fixed on the frog, while the forked tongue was thrust in and out of its mouth, showing the state of excitement that the reptile was in at the contemplation of the feed before it.

Little, however, did the reptile anticipate what was in store for it; for whilst gloating over his wretched victim, a fine half-grown pig, belonging to one of the Chinese ticket-of-leave men, saw him, and rushed at him. The snake was completely taken by surprise, its head at the moment being about four inches below the surface of the bank, thus preventing him seeing the enemy approaching from behind.

The pig, without a moment's hesitation, seized the snake near the tail, and commenced champing him up as a savage would eat a string of macaroni. Again and again the reptile bit him with great violence, twice on the snout, once on the ear, and once on the fore-leg. The pig did not seem to care in the least about it, not stopping for one moment until it had devoured the hideous reptile. It went off grunting its satisfaction at the unexpected and luxurious repast which fate had thrown in its way. I saw the same pig some days afterward, and it certainly did not then evince any signs of speedy dissolution. On another occasion I saw a pig giving chase to a snake, which only made good its escape by reaching the branches of a small banana tree.

An intimate friend of mine once informed me that he saw a whole family of seven cobras devoured by a couple of pigs when he was taking off the roof of a bungalow at Nagasalem, and although the pigs were bitten in at least a half dozen places, it did not have the least effect upon them.

Copper Mining in Quebec.

WE ARE glad to learn that copper mining in Quebec Province is about to share in the general prosperity of the country. Hitherto want of capital has prevented the development of abundant riches in that mineral, and had it not been for the energy and perseverance of the Hon. Mr. Huntington, in working the Acton mine, this source of wealth might have remained in obscurity for many years. The Acton property has been purchased for £125,000 *sterling*, by a company formed in Glasgow, with a capital of £200,000. Such was the confidence manifested in the enterprise by the shrewd Scotch capitalists, that, though the market opened for stock at fifty per cent premium, a million *sterling* was offered in Glasgow alone, besides numerous applications from other cities. This is very gratifying; and we learn from the *Montreal Herald* that the men who have gone into this enterprise mean to make their profit "by steadily working the property they have acquired;" and with this end in view, they propose to send out workmen and machinery at the opening of navigation, and expect within six months to produce two thousand tons per month of selected ore. The works will be managed by Mr. Henderson, who will bring out improved machinery, and put into operation a process for utilizing certain kinds of ore, which experience has proved highly profitable. The *Herald* says the process is particularly adapted to the extracting of sulphur, bleaching powder, and alkali, from ores of the quality which most abound in this Province. By this method, the refuse of the mine, and ores of a quality too inferior to be smelted for the production of copper alone, become very valuable as the basis of the chemical

operations. It is, we believe, the intention of the company to purchase and work other mining properties, so that their expenditure of capital and employment of labour will largely develop the material resources and increase the prosperity of the Eastern Townships.

Cattle Killing Trees

It is a fact that all careful farmers must have noticed, that a tree, seeming ever so thrifty and of whatever kind, to which cattle have access and under which they stand, will very soon die—as in the case of solitary shade trees in pastures or by the roadside. This is a common occurrence, and the question naturally arises, Why is it? First, rubbing a tree on the necks of cattle is highly injurious, and if persisted in will destroy them sooner or later; but if the body of the tree be eased so that their necks cannot touch it, death will ensue just as certainly if they are allowed to trample round it. But why should trampling the earth destroy the trees? The reason is one of wide and important application to the laws of vegetable growth. The roots of plants meet the air just as much as the leaves and branches. Their case is similar to that of fishes, which, though they must have water, must have air also, viz: just about as much as permeates the water. If it be all shut off so that none which is fresh can get to them, they will exhaust the supply on hand, and then die for the want of more. So the roots of trees and vegetables want air.

When the earth is in a normal or natural condition, it is full of channels by which air gets to them. But if cattle are allowed to tramp down the earth, and the sun aids the work by baking it, at the same time a crust like a brick is formed that shuts off the moisture, and the tree soon dwindles and dies. So a tree cannot live if its roots are covered with a close pavement; they will struggle for life by creeping to the surface and hoisting out a brick here and a stone there, or find a crevice where their noses can snuff a little fresh air, but if fought and kept down, will finally give it up. From the above facts I think cattle of no benefit to orchards, and the farmers who still persist in yarding their stock of cattle in their orchards must expect the trees to die off.—*Cor. Country Gentleman.*

"A farmer rises at two o'clock in the morning, and burns out a half-pound of wood and kerosin or kandles, and then goes out to worry the geese and stir up the hogs." This is what "Josh Billings" says.

A very convenient kindling-wood is made in France from corn-cobs, by mixing them in a mixture of sixty parts of melted tallow and forty parts of tar. They are sold in bundles at the rate of three or four for a cent.

A GARDENER'S PLEASURES.—There is no prettier sight, to my eye, than a gardener on a ladder in his grape arbour, selecting the heaviest clusters of grapes, and handing them down to one and another of a group of neighbours and friends, who stand under the shade of the trees, flecked with the sunlight, and cry "How sweet!" "What nice ones!" and the like—remarks encouraging to the man on the ladder. It is a great pleasure to see people eat grapes.—*Warner.*

The Peterboro' *Examiner* says, the fall wheat in that neighbourhood has come out in a very promising manner, and without any "killing."

The fall wheat, in the township of Mornington, says the Stratford *Herald*, looks splendid—on no occasion before, at this season of the year, has there been a better promise of an abundant crop. A few have commenced plowing, but, as yet, little spring work has been done.

The Oshawa *Vindicator* humourously remarks:—The farmers propose to strike work next. There is an epidemic amongst the wealthy owners of this township to sell out and move into town. They say they can't make anything at the business, even working twelve hours per day. We suppose farms will be given away soon in order to get out of the business. We will take one or two in order to relieve any oppressed agriculturist who is anxious to get rid of his burden.

The quantity of potatoes grown in Prussia is very large, amounting in 1870 to 656,000,000 bushels, twice the quantity grown either in France or Britain during the same year. In Prussia the potato is largely used for distillation. In 1869, France produced as much as 4,360,000 tons of best-root, and Austria 1924,000, mostly for the manufacture of sugar.

From these returns it is manifest that in spite of all the supposed drawbacks of soil and climate, there is a larger amount of food raised per acre in Great Britain than in almost any other country, and that while from careful and scientific farming in the United Kingdom that amount is always increasing, in other countries with greater natural advantages, the percentage is rather on the decline.

BOARDING FARM HANDS—The *Williamette Farmer* says: "This is the hardest country in the world for the "women-folks" on farms. Help for them is always scarce and generally poor, and many farmers' wives have entirely too much labour on their hands for either health or happiness. We urge farmers to build tenant houses for their hired help, quit boarding farm hands, hire married men who can live on the farm with their own families, and you will all be more comfortable, live longer, and have more money in the end, if that is the end, although it ought not to be all, of life.

RETENTION OF THE PLACENTA.—In reply to the enquiries of a correspondent, we repeat what we have before stated, that retention of the placenta, or after-birth, is of frequent occurrence in cows, and it may be easily removed by introducing the hand into the womb, and carefully breaking down its uterine connections, and at the same time pulling gently with the other hand. As a general rule, however, it is not advisable to attempt the removal of the placenta until six or eight days after calving. In some cases a slight dose of laxative medicine, as a quarter pound of Epsom salts dissolved in a quart of water, by its action on the bowels, appears to expedite its removal.

A sample of beetroot sugar, manufactured by Mr Moses Kraft, of Bridgeport, Ont., has been brought to London, and the *Free Press* says:—"The colour is a light brown resembling in many ways the granulated mascovalo so much in use. In point of sweetness it will compare favourably with the white or coffee sugar."

VISITING.—It is considered bad manners of the lady of the house to keep her callers in "durance vile"—that is to say, for her not to go 'at once into the room where they have been ushered. Sometimes one calls at a house, and having been shown into a room, has had to wait patiently or otherwise for the tardy appearance of the mistress. Whispers are plainly heard, then consultations, then steps going stealthily up stairs and as quietly descending, and finally the lady of the house appears in a different costume to that she had worn a quarter of an hour before. Profuse apologies invariably fall from her lips—"I am so sorry to have kept you waiting," &c. But, my dear lady, apologies, however numerous, will never make up for want of good manners; and therefore, when the next call honours you go to her as you are, and repress the desire to exhibit your last new cap.—*Manners of Modern Society*.

LUNCHEONS.—Luncheon has been defined as an insult to one's breakfast, and an outrage to one's dinner. It is clearly an interpolation of no very ancient date. Three meals a day—breakfast, dinner and supper—were formerly considered as amply sufficient; but now two more have added themselves to the list, and shouldered out to a great extent the old-fashioned after-dinner tea and supper. Luncheon is one of these extra "feeds" which has squeezed itself firmly in, and now the half hour devoted to this meal is considered as indispensable. We leave it to the decision of the medical community whether long abstinence or the too frequent supplying of the inner man is the most deleterious to health. Luncheons are fairly established in most households. Sometimes they answer the purpose of dinner, then they require to be more substantial, but still they should only exhibit "an elegant sufficiency."—*Manners of Modern Society*.

The Paris *Star* is gratified to learn that there is a prospect that the wheat in the ground has suffered much less than was at one time anticipated from the severity of the winter. An intelligent informant who had occasion yesterday to travel through a great part of this county, tells us that he considers the wheat crop safe, that it apparently has suffered less this season than for many years previous, by reason of the inclemency of the weather. The *Waterloo Chronicle* is happy to learn from several sources that the fears entertained by many some weeks ago, that the Fall Wheat has been "winter killed," were unfounded. The heavy rains of last week beat down the soil round the roots of the plants and started their growth, so that the wheat now promises better than it has for some years at this season. The *Oakville Argus* adds:—"The most favorable accounts of the crops reach us from all sections of the county, and in fact from nearly every part of the country. It is asserted that the drought of the past seasons has been very beneficial to the wheat crop, inasmuch as the dryness of the earth has protected the root and prevented its freezing. Persons who have examined the roots inform us that they have a perfectly healthy appearance, and do not seem to have sustained any injury whatever from being unprotected by the snow during the severest of the winter weather. Such accounts are cheering in the extreme."

MILCH COWS.—A correspondent asks, with a view to correct classification in prize lists, "What is a milch cow?" and wishes to know if a heifer in calf but that has not given milk, comes under this class. We should say not. Strictly speaking, the term includes only cows giving milk.

Advertisements.

Apple Trees Wanted.

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having determined to distribute among the members a tree of the **TETOFENNY** Apple in the spring of 1872, request from nurserymen tenders, stating the number of trees they can furnish of this variety in the spring of 1872, their age, quality, and price. All tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872, the Association reserving the right to decline, accept by any tender.

By order
D. W. BEADLE, Secretary.

500 AGENTS WANTED, Male and Female, to sell two new articles, as salable as Flour, and needed in every family. Samples sent free by mail with terms to clear \$5 to \$10 per day. This is no gift enterprise or lot 'box, but they are new articles of real merit. Ready, if you want profitable and honorable employment, send on your name and post-office address, and receive full particulars, with sample free, by return mail. Address

S. H. WHITE, Newark, New Jersey.

Rochester Commercial Nurseries.

Established 1830.
SEND for our New Circular of Prices per Doz. \$1 per 100, or per 1,000—embracing all best HARDY TREES and PLANTS—both Fruit and Ornamental—besides a select list of Specialties and Novelties. Address

W. S. LITTLE, Rochester, N. Y.

The Fruit Growers' Association OF ONTARIO.

EVERY MEMBER will be allowed to choose any two of the following articles, viz. Wagener Apple Tree, Beurr' d'Orange Pear, McLaughlin Plum, Halo's Early Peach, Onondago Grape. Members will inform the Secretary, D. W. BEADLE, St. Catharines, on or before March 1st, 1872, which two of the above they desire to receive. Any person can become a member by transmitting one dollar to the Secretary before the first of March next.

R. BURNET,
Pres't ent.

Gooseberry Plants Wanted.

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having determined to distribute among the members a plant of the **DOWNING** Gooseberry in the spring of 1872, request from nurserymen tenders, stating the number of plants which they can furnish of this variety, in the spring of 1872, their age, quality, and price.

All tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872; the Association reserving the right to decline accepting any tender.

By order
D. W. BEADLE, Secretary.

Apple Trees Wanted.

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having determined to distribute among the members a tree of the **SWAYZE POMME GRISE** Apple in the spring of 1872, request from nurserymen tenders, stating the number of trees they can furnish of this variety in the spring of 1872, their age, quality, and price. All such tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872; the Association reserving the right to decline accepting any tender.

By order
D. W. BEADLE, Secretary.

IMPORTANT TO

Farmers, Gardeners, Florists SEEDSMEN, &c.

Bone Superphosphate Manure!

QUALITY GUARANTEED, Analysis by the Highest Authority.

PRICE, \$40 PER TON,

In good barrels, containing 200 lbs. each, and in bags containing 50 lbs. each.

No Charge for Bags or Barrels.

Best and Cheapest Fertilizer made.

Try it, and you will always use it.

Manufactured by the "Western of Canada" Superphosphate Works, London.

JOHN WALKER, Manager.

Hunt's Block, Richmond-st.

All orders addressed as above will secure prompt attention. AGENTS WANTED.

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MARBLEHEAD MAMMOTH CABBAGE

THIS IS THE LARGEST CABBAGE IN THE WORLD. It has been grown to weight six pounds. Packages of seed with an engraving of this cabbage and full instructions for growing 25 cents per ounce \$1.00. I am the original introducer of this cabbage, and my seed is pure. Descriptive Catalogues free to all.

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MANURES.

CROPS ripened from 10 to 15 days earlier and yield increased 100 per cent by using

- Lamb's Super-phosphate of Lime, \$40.00 per ton, Fine Bone Dust, 30.00 Half-inch Bone Dust, 20.00

PETER R. LAMB & CO., Manufacturers.

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"MATCHEM" BRED-3 YEARS OLD-Won First Prize two years in succession. "OXFORD" BRED-4 YEARS OLD-Won the Second Prize. "BUTTERLY" BRED-1 year old-won last fall the silver cup. Apply to RICHARD ADAMS, Woodstock, Ont.

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60 ACRE FARM UNDER CULTIVATION, 40. excellent Timber with fine Sugar Grove, situated in Lakelton, Huron Township, Hur. Co., Ontario; healthy region; fine roads. Railroad Stations convenient. On the place there is a house; barn, 40 x 40, and well; a Span of Horses, Farm Implements, &c., will be sold with the place. Terms easy.

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HAVING BEEN THE ORIGINAL INTRODUCER of this famous squash, I am prepared to supply seed to all farmers and gardeners with the purest seed of my own raising. Catalogues with prices, free to all.

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40,000 ORGANS,

(presumably "Cabinet Organs") are sold annually-- somewhere; which we think is nearly the whole number of all sorts of reed organs made in the United States. But over

40,000 AMERICAN ORGANS

are in use, and we are constantly extending our facilities for manufacture. THE SMITH AMERICAN ORGAN Co. is the oldest among New England makers, having been in business over twenty-one years. Our organs are distributed over the civilized world, and are everywhere recognized as

THE LEADING INSTRUMENTS.

English manufacturers, wishing to commend their wares, advertise them in large type as

AMERICAN ORGANS!

While we believe in BRAINS, MUSICAL FEELING and CULTIVATED TASTE, and think that such a combination will not be beaten, in the production of artistic works, by any quantity of planers, borers and jigsaws, we nevertheless avail ourselves of every practical expedient to save labor, by employing machinery to do such work as does not require intellect for its perfection; and a visit to our factory will show that there is no establishment in the country that uses so many

INGENIOUS LABOR-SAVING MACHINES.

Our large capital, equal in amount to that of any competing company, enables us to purchase ample supplies of

THE BEST MATERIALS,

and to give thorough workmanship and completeness to every part of our instruments. And for this end we mean to secure the most

INTELLIGENT SUPERVISION

in every department, and especially to produce the most

BRILLIANT AND MELODIOUS TONE.

We manufacture organs of such a size, and with such a volume as will give permanent satisfaction. If we made the small boxes of thin tones advertised for Fifty Dollars, we could report the sale of much larger numbers in the aggregate than now. But we require and use as much black walnut lumber, which is the indispensable casing of the better class of organs, as any makers in the country.

Our prices are as low as those of any instruments that pretend to a comparison in quality. We have received

ALL THE TESTIMONIALS

we could ask for! and are content not to print the names that can be seen attached to the puffs of all sorts of instruments.

We shall be glad to send our new

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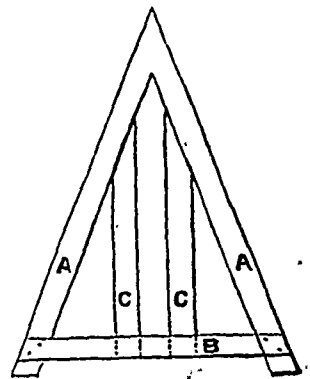
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FRAME-END VIEW.



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- A A - Slanting sides or braces B - Horizontal cross bar C - Upright bars.

THIS RECENT INVENTION COMMENDS ITSELF to Agriculturists, and to landed proprietors generally, by its economy and neatness, as well as its firmness and durability. Being built in a straight line, it saves about one-third the number of rails commonly required in Rail Fences, has a very neat appearance, and utilizes a considerable portion of ground commonly occupied with weeds, which are detrimental to the clean cultivation of the soil. From the drawings given above it will be seen to be of easy construction; and should any locality, by its exposure to heavy gales of winds, require an additional safeguard to the fence, a short piece of rail may be driven into the ground at the points of the triangular frame, and a nail driven into it. The invention has secured the approval of intelligent practical farmers, who have seen it created and tested for some time.

The following names were subscribed to the application for the Patent, and are a guarantee of its utility:--

- JOHN MAIR, Warden of the County of Wellington WILLIAM SHAND, Farmer, Nicolson, THOMAS NAPIER, ALEXANDER RANNIE, JOHN HANNIE, JOHN B. WISSER, JOHN SIMPSON, ALEXR EWING, ROBERT KNIX, GEORGE GIBSON,

The terms upon which the right may be had are: For Farm of 100 Acres, \$2.00. " 200 " " 3.00. " 400 " " and over, 5.00.

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It suits any kind of land and any kind of crops. It is invaluable as a top dressing for Fall Wheat after a severe winter.

It will double the hay crop, and is a specific for all root crops.

It takes 300 lbs. per acre for an ordinary crop, costing not much more than the expense of hauling and spreading manure in a busy season.

It is manufactured at the Brockville Chemical and Super-phosphate Works, Brockville, from whence it can be shipped to any point at low special mileage rates.

\$25.00 per ton at Brockville. Amortized, \$35.00 Put up in barrels of 250 lbs. each, or bags of 160 lbs. Orders sent to

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HAVING been the first to introduce to the public the Hubbard Squash, American Turbin Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Plumey's Water Melon, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other

New and Valuable Vegetables,
with the return of another season I am again prepared to supply the public with Vegetable and Flower Seeds of the purest quality. My Annual Catalogue is now ready, and will be sent free to all. It has not only all novelties, but the standard vegetables of the farm and garden, over one hundred of which are of my own growing, and a carefully selected list of Flower Seeds. On the cover of my Catalogue will be found copies of letters received from farmers and gardeners residing in over thirty different states and territories, who have used my seed from one to ten years. I warrant, -1st That all money sent shall reach me. 2d: That all seed ordered shall reach the purchaser. 3d: That my seeds shall be fresh, and true to name. Catalogues free to all.

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FRUIT AND ORNAMENTAL

For SPRING of 1872.

We invite the attention of Planters and Dealers to our large and complete stock of Standard and Dwarf Fruit Trees, Grape Vines, Small Fruits, Ornamental Trees, Shrubs, Roses, New & Rare Fruit and Ornamental Trees Evergreens and New Plants.

Prompt attention given to all enquiries. Descriptive and Illustrated priced Catalogues sent prepaid on receipt of stamps, as follows: No. 1—Fruits 10c. No. 2—Ornamental Trees, 10c. No. 3—Green-house, 10c. No. 4—Wholesale, Free. Address
Estab'd 1840. **ELLWANGER & BARRY,**
v1-2-3] Mount Hope Nurseries, ROCHESTER, N. Y.

To Farmers and Gardeners.

I invite all who have been in the habit of buying their garden seed from boxes left at the stores, to give my seed a trial side by side, and mark the difference in their germinating, and in the purity and quality of the vegetables raised from them. I have made it my mission for several years past to drive bad seed from the market, and so save farmers and gardeners the immense loss they annually suffer from the purchase of it.

The public have well appreciated my efforts, and I have now like thousands of customers in the United States and Canada. I sell no seed I do not warrant, and what is the real pith of the matter, I stand by my warranty, to enable me to do this I grow myself a large proportion of the seed I sell. Catalogue sent free to any applicant.

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SIXTY-FOUR PAGES, price 25 cts., postpaid. Tells how to plant and grow all kinds of Small Fruit successfully, both for market and home garden. John J. Thomas, Henry Ward Beecher, Judge I. S. Harris, O. G., and others say it is one of the most complete and practical works ever printed. Price List of Plants, retail or wholesale. Free to all applicants. Address
A. M. PURDY, Palmyra, N. Y.
Or **RUEBY & HANCE, South Bend, Ind.**
P. S.—Specimen copies of the Fruit Recorder and Cottage Gardener, a dollar monthly. (A. M. Purdy, Editor) Free to all applicants. It speaks for itself. To see a copy is equivalent to subscribing.
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BUY THE BEST.

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Movable Comb or Frame Hives

ARE all that can be desired for a bee-hive. They were awarded the first prize at all the Provincial Fairs for seven years. They possess more advantages than any other hive in the market, yet are more simple in construction and easier to operate with, which we are prepared to demonstrate at any time. In fact, they are the best and cheapest frame hive now before the public. For full particulars send for circular.

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THE GREAT NATIONAL ILLUSTRATED Rural, Literary, and Family Weekly, Has long been the Favorite Farm and Fire-side Weekly of America, but its Improved Style and Reduced Price for 1872 render it still more popular.

TERMS.—Only \$2.50 a Year: \$2 in Clubs. Sold by all News Dealers; price 6 cts. Great Premiums to Agents. Specimens, Premium Lists, &c., free. **D. D. T. MOORE, New York City.**
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VEGETABLE
 CONSUMPTION.

USED AND RECOMMENDED BY THE MOST EMINENT PHYSICIANS IN NEW ENGLAND FOR THE LAST 45 YEARS. "NOTHING BETTER."
CUTLER BROS. & CO., BOSTON.

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LEWIS, Elwell & Co., Toronto, Agents. 11-61.

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Windsor, Ont., 15th March, 1872. [v4-3-11]

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Toronto Markets:

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The market for breadstuffs is firm, following the late advance in Liverpool prices.

In this city the wholesale prices are as follows:—

FLOUR AND MEAL.

Flour—Superfine \$5 60, Spring Wheat, extra, \$5 60 to \$5 70, Fancy, \$5 70 to \$5 75, Extra, \$6 00.
Oatmeal—\$4 60.
Cornmeal—\$2 90.
Bran, in car lots, \$18.

GRAIN.

Wheat—Softs, \$1 42 to \$1 44; Treadwell, \$1 31 to \$1 34; Spring, \$1 25 to \$1 28, Midgo Proof, \$1 25 to \$1 28.
Barley—No. 1, 68c. to 67c; No. 2, 60c. to 61c.
Oats—42c.
Peas—70c to 72c.
Rye—Nominal, none offering.

HAY AND STRAW.

Hay in fair supply, at \$12 to \$24.
Straw, scarce, at \$10 to \$16.

PROVISIONS.

Beef, by the side, 5 1/2c to 6 1/2c.
Mutton, by the carcass, 7c to 8c.
Apples, per brl., \$2 25 to \$3 00.
Potatoes—per bag, 90c. to \$1 00.
Poultry—Turkeys, \$1 to \$1 50. Chickens, per pair, 40c to 60c; Ducks, per pair, 60c to 80c; Geese, 50c to 70c.
Pork—Mess, \$14 50.
Bacon—Cumberland Cut, 6 1/2c to 6 1/2c; Canada, 6c to 6 1/2c.
Hams—Salted, 9c to 9 1/2c; Smoked, 10 1/2c to 11c.
Lard—9c to 10c.
Butter—Dairy, choice, 18c to 19c.
Eggs—Packed, 12 1/2c to 14c.
Cheese—11c to 13 1/2c; Reeser's Stilton, 18c; Royal, 17c.
Dried Apples—\$1c to 8 1/2c.
Salt—Goderich, \$1 10 to \$1 25; Liverpool, per bag, \$1 20.
Dressed Hogs—\$5 15 to \$5 20.

HIDES AND SKINS.

Hides—No. 1, cured and inspected, per lb 9 1/2c; No. 1, inspected, green, 9c; No. 2, inspected, green, 7 1/2c to 8c.
Sheepskins—1st class, green, \$2 50 to \$3 00; Dry, 50c to \$3 00.
Lambskins—\$2 50 to \$3 00.
Calfskins—green, per lb, 12c.
Wool—Fleece, 53c. to 55c; Palled, 52c to 55c.

THE CATTLE MARKET.

Heves (live weight) \$4 50 to \$5 50 per cwt.
Sheep—\$7 00 to \$10.
Calves—\$3 to \$10.
Lambs—\$3 00 to \$5 00.

Montreal.—Flour—Market dull and easy, but without quotable change in value. sales of ordinary to choice super at \$6 00 to \$6 50. Grain—Nominal in absence of transactions. Provisions—Generally unchanged. Butter—Still unsaleable. Ashes—Pots dull and lower, closing at \$7 65 to \$7 75; pearls unchanged.

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